Service Manual

Model : KF750/KF755c

Internal Use Only

Service Manual

KF750/KF755c

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1. INTRODUCTION

1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of this model.

1.2 Regulatory Information

A. Security

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges for your telecommunications services. System users are responsible for the security of own system.
There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. The manufacturer does not warrant that this product is immune from the above case but will prevent unauthorized use of commoncarrier telecommunication service of facilities accessed through or connected to it. The manufacturer will not be responsible for any charges that result from such unauthorized use.

B. Incidence of Harm

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the phones or compatibility with the net work, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

D. Maintenance Limitations

Maintenance limitations on the phones must be performed only by the manufacturer or its authorized agent. The user may not make any changes and/or repairs expect as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

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E. Notice of Radiated Emissions

This model complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

F. Pictures

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

G. Interference and Attenuation

A phone may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

H. Electrostatic Sensitive Devices

ATTENTION

Boards, which contain Electrostatic Sensitive Device (ESD), are indicated by the sign.
Following information is ESD handling:

- Service personnel should ground themselves by using a wrist strap when exchange system boards.
- When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded.
- Use a suitable, grounded soldering iron.
- Keep sensitive parts in these protective packages until these are used.
- When returning system boards or parts like EEPROM to the factory, use the protective package as described.

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2. PERFORMANCE

2.1 System Overview

Item	Specification
Shape	GSM900/1800/1900 & WCDMA Slide type - Dual Mode Handset
Size	50.8X102.8X11.8 mm
Weight	116g (with standard battery)
Power	800mAh Li-Ion
Talk Time	Over 170 Min (WCDMA, Tx=12 dBm, Voice) Over 190 Min (GSM, Tx=Max, Voice)
Standby Time	Over 220 hrs (WCDMA, DRX=2.56) Over 220 hrs (GSM, Paging period=5)
Antenna	Intenna type
Main LCD	2.4"(320x240), 260K TFT Color LCDs
Main LCD BL	White LED Backlight
Vibrator	Yes (Coin Type)
Speaker	Yes
MIC	Yes (SMD Type)
Receiver	Yes
Earphone Jack	Yes
SIM Socket	Yes(SIM Block Type) : 3.0V & 1.8V
Volume Key	Push Type (+ , -)
Voice Key	Push Type
External Memory	T - Flash Socket
I/O Connect	18 Pin

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2.2 Usable environment

1) Environment

Item	Specification	Unit
Voltage	3.7 (Typ), 3.4 (Min), (Shut Down: 3.23)	V
Operation Temp	-20 ~ + 60	°C
Storage Temp	-30 ~ + 85	°C
Humidity	max. 85	%

2) Environment (Accessory)

Item	Spec.	Min	Typ.	Max	Unit
Power	Available power	100	220	240	Vac

* CLA : 12~24V(DC).

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2.3 Radio Performance

1) Transmitter-GSM Mode

No	Item		GSM		DCS/PCS	
1	Conducted Spurious Emission	MS allocated Channel	100k~1GHz	-39dBm	9k~1GHz	-39dBm
					1G~1710MHz	-33dBm
			1G~12.75GHz	-33dBm	1710M~1785MHz	-39dBm
					1785M~12.75GHz	-33dBm
		Idle Mode	100k~880MHz	-60dBm	100k~880MHz	-60dBm
			880M~915MHz	-62dBm	880M~915MHz	-62dBm
			915M~1000Mz	-60dBm	915M~1000MHz	-60dBm
			1G~1.71GHz	-50dBm	1G~1.71GHz	-50dBm
			1.71G~1.785GHz	-56dBm	1.71G~1.785GHz	-56dBm
			1.785G~12.75GHz	-50dBm	1.785G~12.75GHz	-50dBm
	Radiated Spurious Emission	MS allocated Channel	30M~1GHz	-36dBm	30M~1GHz	-36dBm
					1G~1710MHz	-30dBm
			1G~4GHz	-30dBm	1710M~1785MHz	-36dBm
					1785M~4GHz	-30dBm
		Idle Mode	30M ~ 880MHz	-57dBm	30M~880MHz	-57dBm
			880M ~ 915MHz	-59dBm	880M~915MHz	-59dBm
			915M~1GHz	-57dBm	915M~1GHz	-57dBm
			1G~1.71GHz	-47dBm	1G 1.71GHz	-47dBm
			1.71G~1.785GHz	-53dBm	1.71G~1.785GHz	-53dBm
			1.785G~4GHz	-47dBm	1.785G~4GHz	-47dBm

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2. PERFORMANCE

No	Item		GSM		DCS/PCS	
2	Frequency Error		± 0.1ppm		± 0.1ppm	
3	Phase Error		± 5(RMS)		± 5(RMS)	
			± 20(PEAK)		± 20(PEAK)	
4	Frequency Error		3dB below reference sensitivity		3dB below reference sensitivity	
	Under Multipath and		RA250 : ± 200Hz		RA250: ± 250Hz	
	Interference Condition		HT100 : ± 100Hz		HT100: ± 250Hz	
			TU50 : ± 100Hz		TU50: ± 150Hz	
			TU3 : ± 150Hz		TU1.5: ± 200Hz	
5	Output RF	Due to	0 ~ 100kHz	+0.5dB	0 ~ 100kHz	+0.5dB
	Spectrum	modulation	200kHz	-30dB	200kHz	-30dB
			250kHz	-33dB	250kHz	-33dB
			400kHz	-60dB	400kHz	-60dB
			600 ~ 1800kHz	-66dB	600 ~ 1800kHz	-60dB
			1800 ~ 3000kHz	-69dB	1800 ~ 6000kHz	-65dB
			3000 ~ 6000kHz	-71dB	≥ 6000kHz	-73dB
			≥ 6000kHz	-77dB		
		Due to	400kHz	-19dB	400kHz	-22dB
		Switching	600kHz	-21dB	600kHz	-24dB
		transient	1200kHz	-21dB	1200kHz	-24dB
			1800kHz	-24dB	1800kHz	-27dB
7	Intermodulation attenuation		-		Frequency offset	800kHz
					Intermodulation product should be Less than 55dB below the level of Wanted signal	

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No	Item	GSM			DCS/PCS		
8	Transmitter Output Power	Level	Power	Toler.	Level	Power	Toler.
		5	33	±3	0	30	±3
		6	31	±3	1	28	±3
		7	29	±3	2	26	±3
		8	27	±3	3	24	±3
		9	25	±3	4	22	±3
		10	23	±3	5	20	±3
		11	21	±3	6	18	±3
		12	19	±3	7	16	±3
		13	17	±3	8	14	±3
		14	15	±3	9	12	±4
		15	13	±3	10	10	±4
		16	11	±5	11	8	±4
		17	9	±5	12	6	±4
		18	7	±5	13	4	±4
		19	5	±5	14	2	±5
					15	0	±5
9	Burst timing	Mask IN			Mask IN		

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2) Transmitter-WCDMA Mode

No	Item	Specification
1	Maximum Output Power	Class 3 : +24dBm(+1/-3dB) Class4: +21dBm(±2dB)
2	Frequency Error	± 0.1ppm
3	Open Loop Power control in uplink	± 9dB@normal, ± 12dB@extreme
4	Inner Loop Power control in uplink	Adjust output(TPC command)
		cmd 1dB 2dB 3dB
		+1 +0.5/1.5 +1/3 +1.5/4.5
		0 -0.5/+0.5 -0.5/+0.5 -0.5/+0.5
		-1 -0.5/-1.5 -1/-3 -1.5/-4.5
		Group (10 equel command group)
		+1 +8/+12 +
5	Minimum Output Power	-50dBm(3.84MHz)
6	Out-of-synchronization handling of output power	Qin/Qout : PCCH quality levels Toff@DPCCH/Ior : -22 -> -28dB Ton@DPCCH/Ior : -24 -> -18dB
7	Transmit OFF Power	-56dBm(3.84MHz)
8	Transmit ON/OFF Time Mask	± 25us PRACH,CPCH,uplinlk compressed mode
9	Change of TFC	± 25us Power varies according to the data rate DTX : DPCH off (minimize interference between UE)
10	Power setting in uplink compressed	± 3dB(after 14slots transmission gap)
11	Occupied Bandwidth(OBW)	5MHz(99%)
12	Spectrum emission Mask	-35-15*(∆f-2.5)dBc@∆f=2.5~3.5MHz,30k -35-1*(∆f-3.5)dBc@∆f=3.5~7.5MHz,1M -39- 10*(∆f-7.5)dBc@∆f=7.5~8.5MHz,1M -49dBc@∆f=8.5~12.5MHz,1M
13	Adjacent Channel Leakage Ratio(ACLR)	33dB@5MHz, ACP>-50dBm 43dB@10MHz, ACP>-50dBm

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No	Item	Specification
14	Spurious Emissions (*: additional requirement)	-36dBm@f=9~150KHz, 1K BW - -36dBm@f=150KHz~30MHz, 10k -36dBm@f=30~1000MHz, 100k -30dBm@f=1~12.75GHz, 1M -41dBm*@1893.5~1919.6MHz, 300k -67dBm*@925~935MHz, 100k -79dBm*@935~960MHz, 100k -71dBm*@1805~1880MHz, 100k
15	Transmit Intermodulation	-31dBc@5MHz, Interferer -40dBc -41dBc@10MHz, Interferer -40dBc
16	Error Vector Magnitude (EVM)	17.5%(>-20dBm) (@12.2K, 1DPDCH+1DPCCH)
17	Transmit OFF Power	-15dB@SF=4, 768kbps, multi-code transmission

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3)Receiver-GSM Mode

No	Item		GSM850/900	DCS & PCS
1	Sensitivity (TCH/FS Class II)		-105dBm	-105dBm
2	Co-Channel Rejection (TCH/FS Class II, RBER, TU high/FH)		C/Ic=7dB	C/Ic=7dB
3	Adjacent Channel Rejection	200kHz	C/Ia1=-12dB	C/Ia1=-12dB
		400kHz	C/Ia2=-44dB	C/Ia2=-44dB
4	Intermodulation Rejection		Wanted Signal: -98dBm 1'st interferer: -44dBm 2'st interferer: -45dBm	Wanted Signal :-96dBm 1st 1'st interferer: -44dBm 2'st interferer: -44dBm
5	Blocking Response (TCH/FS Class II, RBER)		Wanted Signal: -101dBm Unwanted Signal: Depend on freq.	Wanted Signal: -101dBm Unwanted Signal: Depend on freq.

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4) Receiver-WCDMA Mode

No	Item	Specification
1	Reference Sensitivity Level	-106.7dBm(3.84M)
2	Maximum Input Level	-25dBm(3.84MHz) -44dBm/3.84MHz(DPCH_Ec) UE@+20dBm output power(class3)
3	Adjacent Channel Selectivity (ACS)	33dB UE@+20dBm output power(class3)
4	In-band Blocking	-56dBm/3.84MHz@10MHz UE@+20dBm output power(class3)
		-44dBm/3.84MHz@15MHz UE@+20dBm output power(class3)
5	Out-band Blocking	-44dBm/3.84MHz@f=2050~2095 & 2185~2230MHz, band a) UE@+20dBm output power(class3)
		-30dBm/3.84MHz@f=2025~2050 & 2230~2255MHz, band a) UE@+20dBm output power(class3)
		-15dBm/3.84MHz@f=1~2025 & 2255~12500MHz, band a) UE@+20dBm output power(class3)
6	Spurious Response	-44dBm CW UE@+20dBm output power(class3)
7	Intermodulation Characteristic	-46dBm CW@10MHz & -46dBm/3.84MHz@20MHz UE@+20dBm output power(class3)
		-57dBm@f=9KHz~1GHz, 100k BW
8	Spurious Emissions	-47dBm@f=1~12.75GHz, 1M -60dBm@f=1920~1980MHz, 3.84MHz -60dBm@f=2110~2170MHz, 3.84MHz

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5) Transmitter

5.1 Transmitter

No	Item	Specification		
1	Out Power	Class 2 : -6~4dBm		
2	Power Density	Power density < 20dBm per 100kHz EIRP		
3	Power Control	Option 2dB ≤ step size ≤ 8dB		
4	TX Output Spectrum -Frequency range	fmax & fmin @ below the level of -30dBm (100khz BW) within 2.4GHz~2.4835GHz		
5	TX Output Spectrum -20dB Bandwidth	≤ 1MHz		
6	Tx Output Spectrum -Adjacent channel Po	≤ -20dBm @ C/I = 2MHz ≤ -40dBm @ C/I ≥ 3MHz		
7	Modulation Characteristics	140kHz ≤ delta f1 avg ≤ 175kHz delta f2max ≥ 115kHz at least 99.9% of all deltaf2max delta f2avg/deata f1avg ≥ 0.8		
8	Init. Carrier Freq. Tolerance	≤ ±75KHz		
9	Carrier Frequency Drift	1 slot : ≤ ±25kHz 3 slot : ≤ ±40kHz 5 slot : ≤ ±40kHz Maximum drift rate ≤ 20KHz/50usec		
10	Out of Band Spurious Emissions	Freq.Range	Operating	Standby
		30MHz~1GHz	-36dBm	-57dBm
		Above 1GHz~ 12.75GHz	-30dBm	-47dBm
		1.8~1.9GHz	-47dBm	-47dBm
		5.15~5.3GHz	-47dBm	-47dBm

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5.2 Transmitter

No	Item	Specification	
1	Sensitivity single slot packets	BER ≤ 0.1%@-70dBm	
2	Sensitivity multi slot packets	BER ≤ 0.1%@-70dBm	
3	C/I performance	BER ≤ 0.1%@ (Low,Mid,High Frequency) 2405MHz, 2441MHz, 2477MHz	
		Interference	Ratio
		Co-Channel interference, C/I co-channel	11dB
		Adjacent(1MHz)interference, C/I 1MHz	0dB
		Adjacent(2MHz)interference, C/I 2MHz	-30dB
		Adjacent(≥ 3MHz)interference, C/I ≥ 3MHz	-40dB
		Adjacent(≥ 3MHz)interference to in band	-9dB
		mirror frequency, C/I image ±1MHz	-20dB
4	Blocking Characteristic	BER ≤ 0.1%@wanted signal -67dBm	
		interfering Signal Frequency	PowerLevel
		30MHz~2000MHz	-10dBm
		2000MHz~2400MHz	-27dBm
		2500MHz~3000MHz	-27dBm
		3000MHz~12.75GHz	-10dBm
5	Intermodluation Performance	BER ≤ 0.1%@wanted signal -64dBm static sinwave signal at f1=-39dBm a BT modulated signal f2=-39dBm(payload PRBS15)	
6	Maximum Input Level	BER ≤ 0.1%@-20dBm	

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2.4 Current Consumption

(VT test : Speaker off, LCD backlight On)

	Stand by	Voice Call	VT
WCDMA Only	220 Hours = 3.6 mA (DRX=2.56)	170 Min = 280 mA (Tx=12dBm)	125 Min= 380 mA (Tx=12dBm)
GSM	220 Hours = 3.6 mA (paging=5period)	190 Min = 250 mA (Tx=Max)	

2.5 RSSI

No		WCDMA	GSM
1	BAR 7 → 5	-93 (+/- 2dB)	-90 (+/- 2dB)
2	BAR 5 → 4	-98 (+/- 2dB)	-104 (+/- 2dB)
3	BAR 4 → 2	-101 (+/- 2dB)	-108 (+/- 2dB)
4	BAR 2 → 1	-104 (+/- 2dB)	-110 (+/- 2dB)
5	BAR 1 → 0	-106 (+/- 2dB)	-112 (+/- 2dB)

2.6 Battery Bar

Indication	Standby
Bar 3 → 2	3.69 ± 0.05V
Bar 2 → 1	3.53 ± 0.05V
Bar 1 → Icon Blinking	3.40 ± 0.05V
Low voltage, warning message	3.40 ± 0.05V
Power OFF	3.26 ± 0.05V

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2.7 Sound Pressure Level

No	Test Item		Specification	
1	Sending Loudness Rating (SLR)	MS	NOM	8 ± 3 dB
			MAX	
2	Receiving Loudness Rating (RLR)		NOM	-1 ± 3dB
			MAX	-15 ± 3dB
3	Side Tone Masking Rating (STMR)		NOM	17dB over
			MAX	
4	Echo Loss (EL)		NOM	40dB over
			MAX	
5	Sending Distortion (SD)		refer to TABLE 30.3	
6	Receiving Distortion (RD)		refer to TABLE 30.4	
7	Idle Noise-Sending (INS)		NOM	-64dBm0p under
			MAX	
8	Idle Noise-Receiving (INR)		NOM	-47dBPA under
			MAX	-36dBPA under
9	Sending Loudness Rating (SLR)	HEAD SET	NOM	8 ± 3dB
			MAX	
10	Receiving Loudness Rating (RLR)		NOM	-1 ± 3dB
			MAX	-12 ± 3dB
11	Side Tone Masking Rating (STMR)		NOM	25dB over
			MAX	
12	Echo Loss (EL)		NOM	40dB over
			MAX	
13	Sending Distortion (SD)		refer to TABLE 30.3	
14	Receiving Distortion (RD)		refer to TABLE 30.4	
15	Idle Noise-Sending (INS)		NOM	-55dBm0p under
			MAX	
16	Idle Noise-Receiving (INR)		NOM	-45dBPA under
			MAX	-40dBPA under

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No	Test Item			Specification	
17	TDMA NOISE GSM: Power Level: 5 DCS: Power Level: 0 (Cell Power: -90 ~ -105dBm) Acoustic(Max Vol.) MS/HEADSET SLR: 8 ± 3dB MS/HEADSET RLR: -13 ± 1dB/-15dB (SLR/RLR: mid-Value Setting)	MS	GSM	SEND	-62dBm under
				REV.	
			DCS	SEND	
				REV.	
		Headset	GSM	SEND	
				REV.	
			DCS	SEND	
				REV.	

2.8 Charging

- **Normal mode:** Complete Voltage: 4.2V
  Charging Current: 500mA
- **Await mode:** In case of During a Call, should be kept 3.9V
  (GSM: It should be kept 3.9V in all power level
  WCDMA: It will not be kept 3.9V in some power level)
- **Extend await mode:** At Charging prohibited temperature(0°C under or 45°C over)
  (GSM: It should be kept 3.7V in all power level
  WCDMA: It will not be kept 3.7V in some power level)

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3. TECHNICAL BRIEF

3.1 Digital Baseband(DBB) & Multimedia Processor

3.1.1 General Description

• **Access subsystem**

- Access Central Processing Unit (CPU) subsystem - ARM926, Joint Test Action Group (JTAG), Embedded Trace Module (ETM), Instruction and Data (I&D)-cache, and I&D-TCM
- Access peripheral subsystems - Subscriber Identity Module (SIM) interface, IrDA®, Universal Serial Bus (USB), Universal Asynchronous Receiver/Transmitter (UART), and so on
- Digital Signal Processor (DSP) subsystem - CEVA-X1620, JTAG, Static Random Access Memory (SRAM), and Program Data Read Only Memory (PDROM)
- EDGE/GSM/GPRS (EGG) subsystem - EGG hardware accelerators
- WCDMA subsystem - WCDMA hardware accelerators

• **Application subsystem**

- Application CPU subsystem - containing ARM926, JTAG, ETM, I&D-cache, and I&D-TCM
- Application peripheral subsystems - I2C¢,, keypad, UART, and so on
- Graphics subsystem - XGAM subsystem
- Audio Processing Execution (APEX) and video encoder subsystems In addition to the two subsystems above, there is also a test block, chip control block, and a pad multiplexing block residing at the top level

• **DSP**

- The Digital Signal Processor Subsystem (DSPSUB) includes a DSP megacell, which contains the DSP CPU together with a tightly coupled memory. The DSP is the Ceva-X 1620 core with a 64 kB instruction RAM and a 64 kB data RAM. It also contains debug logic and interfaces. In addition to the megacell, the DSPSUB includes external memories, peripheral units, and interfaces. The DSP megacell is clocked at 208 MHz.
- The DSPSUB includes an AHB master and an AHB slave interface. The AHB master provides a direct access to the Internal Random Access Memory (IRAM) in the EGG core through the AHB. The AHB slave interface allows the CPU and the DMA to access in the program and data RAM residing in the DSPSUB.

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3. TECHNICAL BRIEF

• **Multi-media Processor(MMIC : ZR3453X)**

- The ZR3453X is an advanced multimedia coprocessor for cellular devices. ZR3453X is an MCP that includes a multimedia core and SDRAM memory chip. The multimedia core performs audio and video recording, playback, and editing; still image capture (DSC), viewing, and editing; MIDI/MP3 playback (for ring tones); 3D acceleration (for gaming). The memory chip in the MCP is a 16MB (2MB) mobile SDRAM (that can be enlarged by packaging to 64MB), used both for program code and for working data (both stream data and frame buffers).

• **WCDMA subsystem**

- The digital baseband controller WCDMA subsystem incorporate a WCDMA modem
- An interface to the WCMDA together with memory control and an internal single port RAM. The WCDMA subsystem has three AHB slave interfaces.
- The Ericsson DB 3150 also includes HSDPA class 6 functionality.
- The WCDMA subsystem is handled and provided by Ericsson.

• **XGAM subsystem**

- The XGAM subsystem is a graphics acceleration module that provides hardware support in the creation of visual imagery and the transfer of this data to a display. The XGAM also provides support for connecting a Camera module. The visual data could be graphics, still images, or video.
- The XGAM subsystem is handled and provided by Ericsson.

• **Operation and Services**

- I^2C™ Interface
- SIM Interfaces
- General Purpose I/O (GPIO) Interface
- External Memory Interface that supports NAND, NOR, PSRAM, SDRAM
- JTAG
- RTC
- ETM (in Prototype Package)

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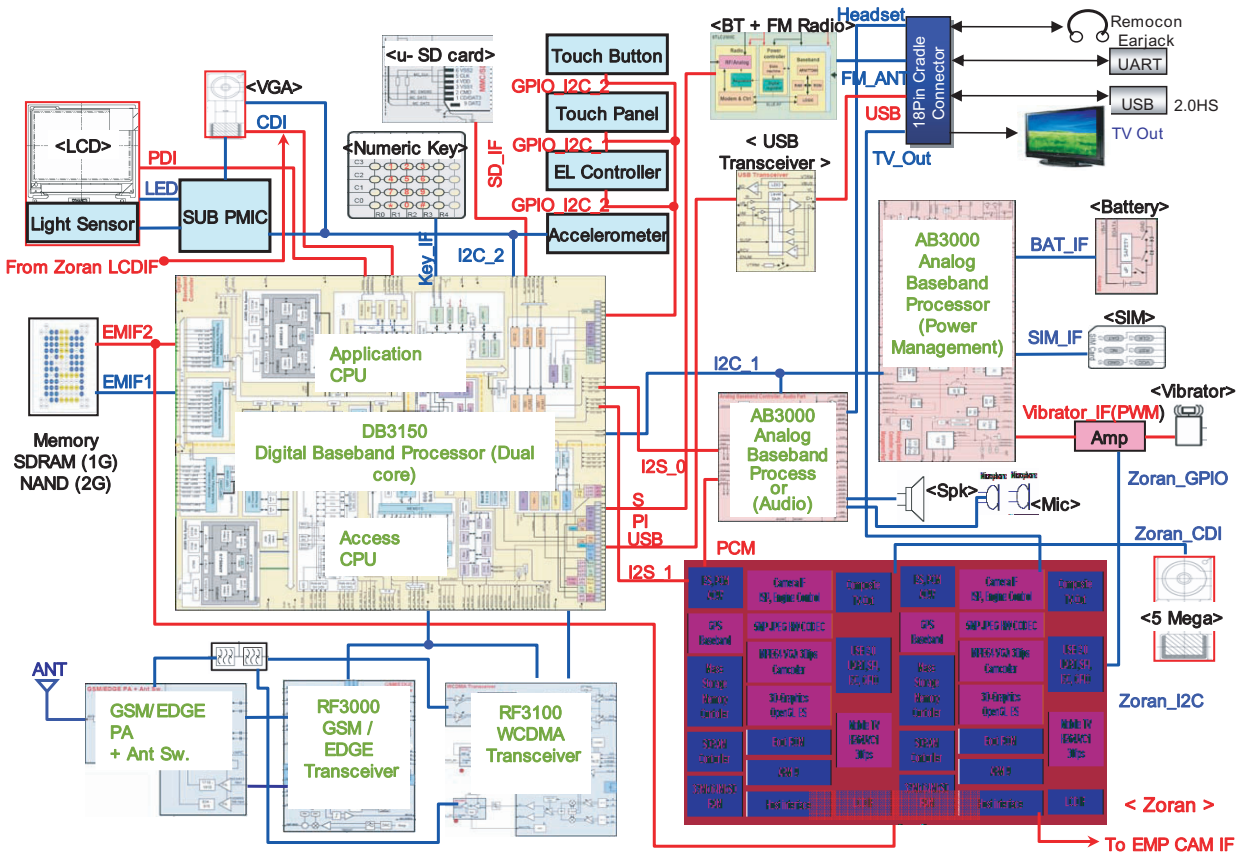

Figure 3-1-1 KF750 Block Diagram

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3.1.2 External memory interface

RF calibration data, Audio parameters and battery calibration data etc are stored in flash memory area.

A. KF750

• 2Gb NAND flash memory +1G SDRAM

Device	PartName	Maker	Item	Time	Size	Speed
NAND flash	KAL00900BM-DJ55	Samsung	Program speed	200μs	1Page=(2K + 64)Bytes	10.32MByte/s
			Erase speed	1.5ms	1Block=(128K+4K)Bytes	88MByte/s

Figure 3-1-1 KF750 Block Diagram

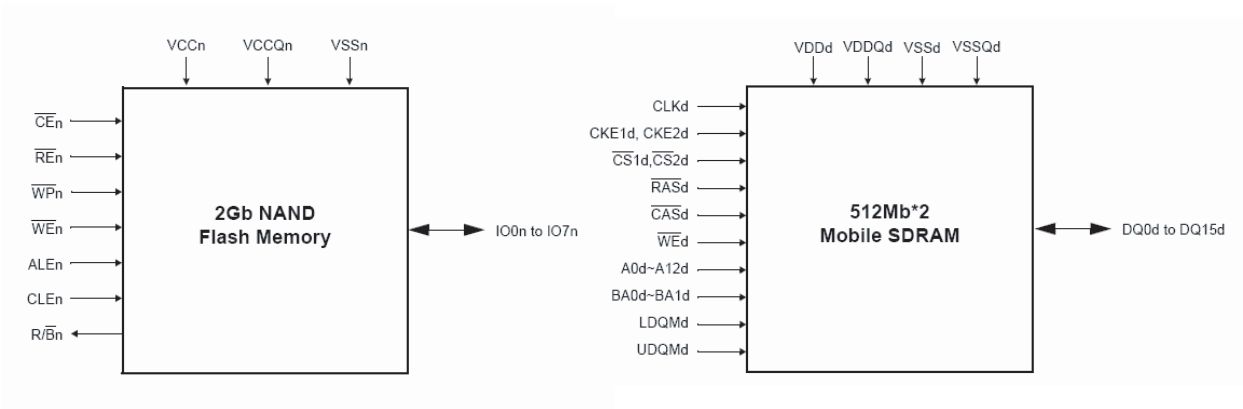

Figure 3- 1- 2. External Memory Configuration of KF750

• Data Communication
  - IrDA ® (SIR)
  - UARTs (ACB, EDB (RS232))
  - Slave USB

• Package
  - 12 by 12 mm 344 balls, 0.5mm pitch FPBGA Production Package

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3.1.3 Hardware Architecture

A. Block Diagram

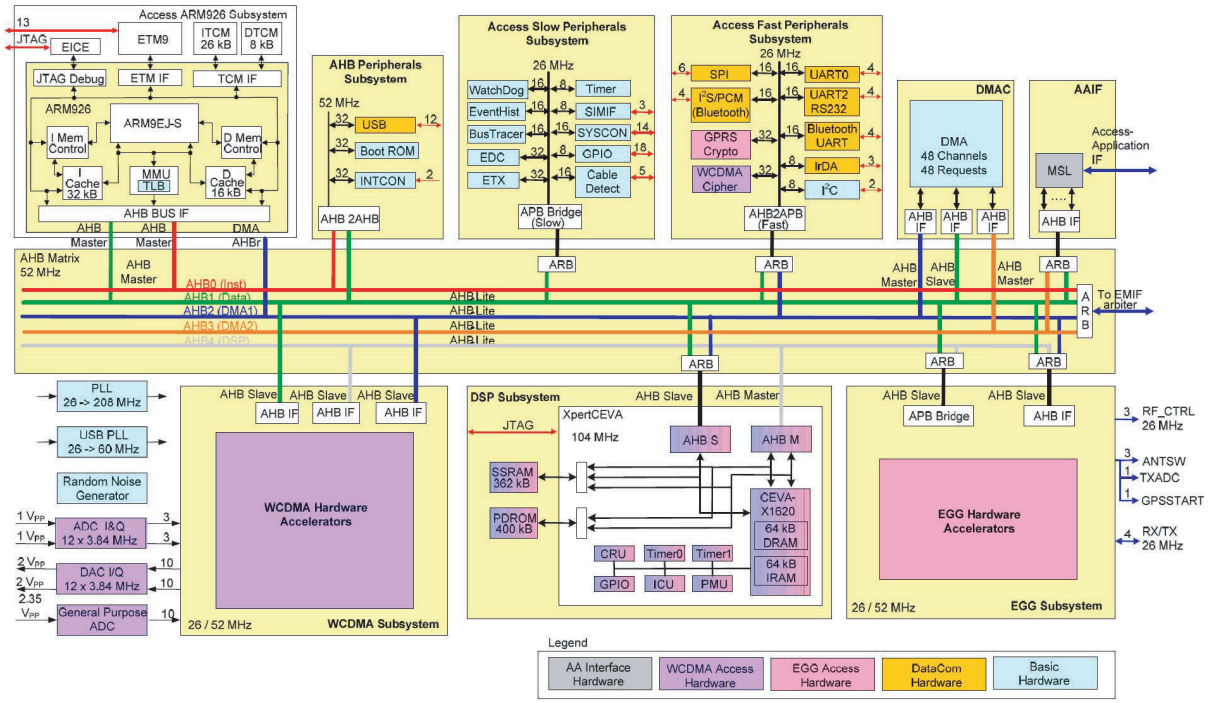

Figure 3-1-3. Access system of Ericsson DB3150

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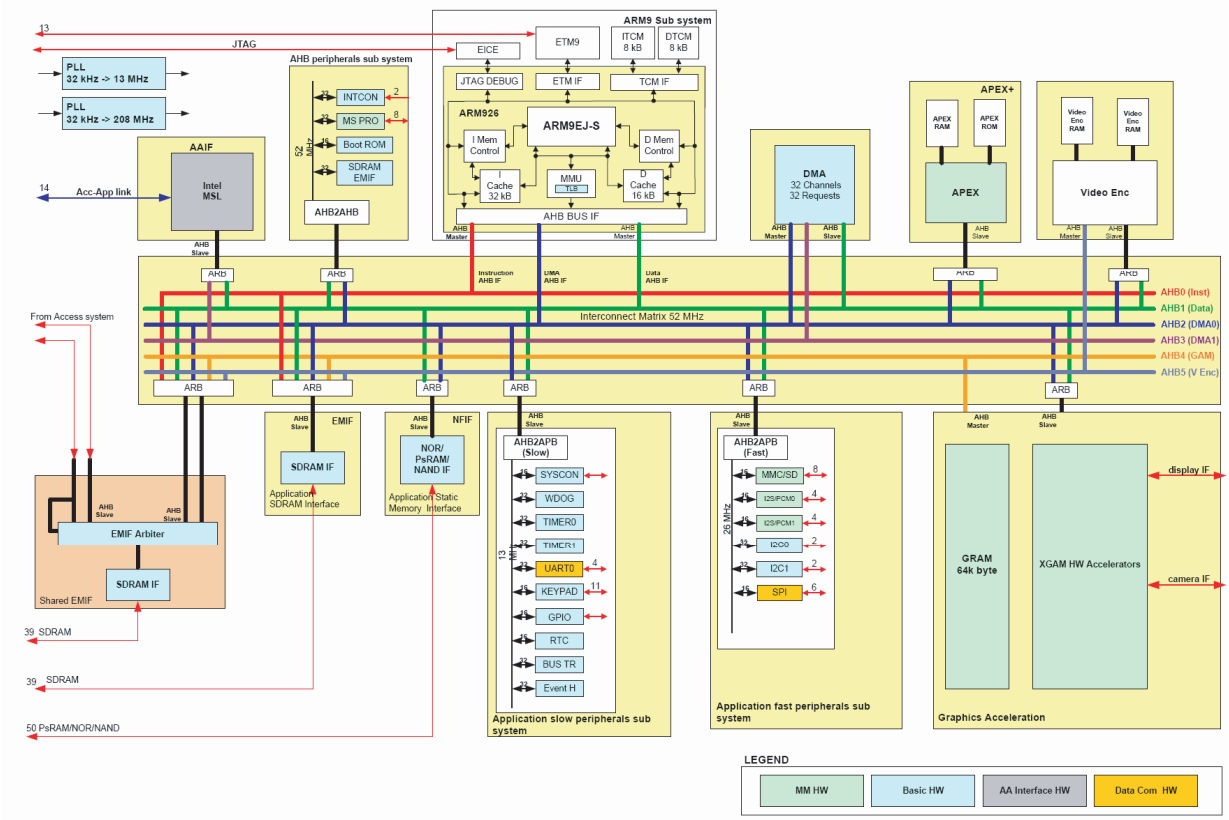

Figure 3-1-4. Application system of Ericsson DB3150

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B. CPU Subsystem

• Access CPU subsystem

The digital baseband controller includes an access CPU subsystem, which includes the submodules described below.

- 32 KiB I-cache
- 16 KiB D-cache
- Page table
- Memory Management Unit (MMU)
- JTAG
- ETM9
- 26 KiB I-TCM
- 8 KiB D-TCM

• Application CPU subsystem

The digital baseband controller includes an Application CPU subsystem, which includes the submodules described below.

- 32 KiB I-cache
- 16 KiB D-cache
- Page table
- MMU
- JTAG
- ETM9
- 8 KiB I-TCM
- 8 KiB D-TCM

C. Peripheral Hardware Subsystem

The digital baseband controller includes hardware that supports mobile terminal peripherals such as a MMC, SD, UART, I2C, USB, keypad, and infrared. Collectively, this hardware comprises the Peripheral subsystem.

The functional blocks of the Peripheral subsystem connect to the peripheral bus through four separate bridges, which provide a simple interface to support different timing and memory access arrangements.

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D. DSP Hardware Subsystem

The Digital Signal Processor Subsystem (DSPSUB) includes a DSP megacell, which contains the DSP CPU together with a tightly coupled memory. The DSP is the Ceva-X 1620 core with a 64 kB instruction RAM and a 64 kB data RAM. It also contains debug logic and interfaces. In addition to the megacell, the DSPSUB includes external memories, peripheral units, and interfaces. The DSP megacell is clocked at 208 MHz.

The DSPSUB includes an AHB master and an AHB slave interface. The AHB master provides a direct access to the Internal Random Access Memory (IRAM) in the EGG core through the AHB. The AHB slave interface allows the CPU and the DMA to access in the program and data RAM residing in the DSPSUB.

E. XGAM Subsystem

The XGAM subsystem is a graphics acceleration module that provides hardware support in the creation of visual imagery and the transfer of this data to a display. The XGAM also provides support for connecting a Camera module. The visual data could be graphics, still images, or video.

The XGAM subsystem is handled and provided by Ericsson.

F. System Control Subsystem

The SYSCON resides at the top level of the circuit architecture and is responsible for clock generation and clock and reset distribution within the digital baseband controller, as well as to external devices.

The block is a slave peripheral under control of the ARM processor. The programming of the SYSCON controls the fundamental modes of operation within the digital baseband controller. Individual blocks can also be reset and their clocks held inactive by accessing the appropriate control registers.

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3.1.4 RF Interface

A. Asta Interface

Asta controls GSM RF part using these signals through GSM RF chip-Gimli.

- RF_DATA_A
- RF_DATA_B
- RF_DATA_C
- RF_DATA_STRB

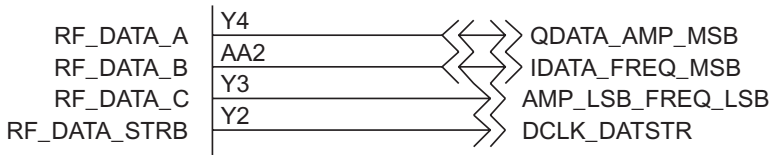

Figure 3-1- 5. Schematic of Asta RF Interface

B. WCDMA Radio Link Interface

- RF_WCDMA_PA_0_EN
- RF_WCDMA_PA_1_EN
- RF_WCDMA_DCDC_EN
- RF_WCDMA_PWRDET_EN

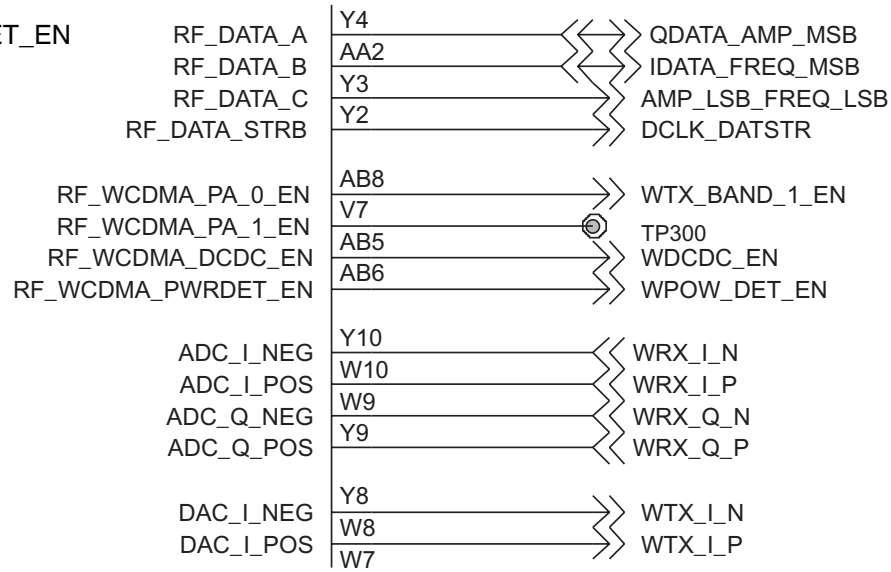

Figure 3-1-6. Schematic of WCDMA RF Interface

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3.1.5 SIM Interface

SIM interface scheme is shown in Figure3-1-6.

SIMDAT0, SIMCLK0, SIMRST0 ports are used to communicate DBB(Asta) with ABB(Veronica) and filter.

SIM (Interface between DBB and ABB)	
SIMDAT0	SIM card bidirectional data line
SIMCLK0	SIM card reference clock
SIMRST0	SIM card async/sync reset

Table 3-1-2. SIM Interface

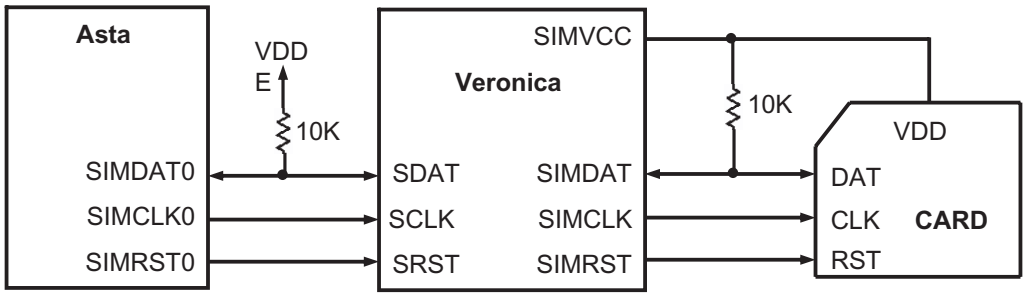

Figure 3-1-7. SIM Interface

3.1.6 UART Interface

UART signals are connected to Asta GPIO through IO connector

Resource	Name	Note
UART0		
ACC_GPIO_2	ACC_UART_RX	ACC Receive Data
ACC_GPIO_3	ACC_UART_TX	ACC Transmit Data
UART1		
APP_GPIO_0	APP_UART_RX	APP Receive Data
APP_GPIO_1	APP_UART_TX	APP Transmit Data

Table 3-1-3. UART Interface

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3.1.7 GPIO (General Purpose Input/Output) map

In total 39 allowable resources. This model is using 39 resources.

GPIO Map, describing application, I/O state, and enable level are shown in below table.

DB3150's GPIO	GPIO Mapping	Init Status
ACC_GPIO_0	ACC_GP00_USB_STP	Output low
ACC_GPIO_1	ACC_GP01_USB_DIR	input
ACC_GPIO_2	ACC_GP02_UART0_RX	input
ACC_GPIO_3	ACC_GP03_UART0_TX	Output
ACC_GPIO_4	ACC_GP04_USB_CLK	input
ACC_GPIO_5	ACC_GP05_USB_NXT	input
ACC_GPIO_6	ACC_GP06_USB_DAT4	input / Output
ACC_GPIO_7	ACC_GP07_USB_DAT5	input / Output
ACC_GPIO_8	ACC_GP10_USB_DAT6	input / Output
ACC_GPIO_9	ACC_GP11_USB_DAT7	input / Output
ACC_GPIO_10	ACC_GP12_TOUCH_LDO_EN	Output low
ACC_GPIO_11	ACC_GP13_SPK_AMP_EN	Output low
ACC_GPIO_12	ACC_GP14_BT_SPI_INT	Input
ACC_GPIO_13	ACC_GP15_FLIPSENSE	Input
ACC_GPIO_14	ACC_GP16_FM_GPIO2	Input
ACC_GPIO_15	ACC_GP17_PHFSENSE	Input
ACC_GPIO_16	ACC_GP20_USB_CS_PD	input / Output
ACC_GPIO_17	ACC_GP21_VC_IO_OFF	Output low
ACC_GPIO_18	ACC_GP22_USB_DAT3	input / Output
ACC_GPIO_19	ACC_GP23_BT_SPI_CS0n	Output
ACC_GPIO_20	ACC_GP24_BT_SPI_DAT0	Output low
ACC_GPIO_21	ACC_GP25_BT_SPI_DAT1	Input
ACC_GPIO_22	ACC_GP26_BT_SPI_CLK	Output low
ACC_GPIO_23	ACC_GP27_AMP_SW_EN	Output low

Table 3-1-4. Asta ACC GPIO Map Table

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DB3150's GPIO	GPIO Mapping	Init Status
APP_GPIO_0	APP_GP00_UART_RX	Input
APP_GPIO_1	APP_GP01_UART_TX	Output
APP_GPIO_2	APP_GP02_MMP_INT_n	Input
APP_GPIO_3	APP_GP03_MMP_PWR_EN	Output low
APP_GPIO_4	APP_GP04_TOUCH_SCREEN_INT	Input
APP_GPIO_5	APP_GP05_TOUCH_SCREEN_SCL	Output
APP_GPIO_6	MICROSD_DAT3	Input
APP_GPIO_7	APP_GP07_3AXIS_INT	Input
APP_GPIO_8	APP_GP10_MMP_RESET_N	Output low
APP_GPIO_9	APP_GP11_REMOTE_INT	Input
APP_GPIO_10	APP_GP12_LCD_ID	Input
APP_GPIO_11	APP_GP13_MC_CLKRET	Input
APP_GPIO_12	SUB_PM_RESETB	Output low
APP_GPIO_13	MOTOR_EN	Output low
APP_GPIO_14	APP_GP16_TOUCH_SCREEN_SDA	input / Output

Table 3-1-5. Asta APP GPIO Map Table

DB3150's GPIO	GPIO Mapping	Init Status
GPIO_0	CI_VSYNC_WITHOUT_FF	Output low
GPIO_1	APP_GP05_TOUCH_RESET	Output low
GPIO_2	CI_VSYNC	Output low
GPIO_3		
GPIO_4	MMP_CAM_RESET_N	Output low
GPIO_5	MMP_CAM_PWR_EN	Output low
GPIO_6	MMP_CAM_PWDN	Output low
GPIO_7	FLASH_LED_EN	Output low
GPIO_8	FLASH_LED_TORCH	Output low
GPIO_9	FLASH_LED_INH	Output low

Table 3-1-5. MMIC APP GPIO Map Table

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3.1.8 USB

The USB block supports the implementation of a °∞High-speed" device fully compliant to USB 2.0 standard. It provides an interface between the CPU (embedded local host) and the USB wire, and handles USB transactions with minimal CPU intervention.

The USB specification allows up to 15 pairs of endpoints. Data for each endpoint is buffered in RAM within the USB block and is read/written from the endpoint FIFO using DMA transfers or FIFO register access. High-speed (high throughput) endpoints can use DMA while slower endpoints can use FIFO register access.

The USB block can request up to six DMA channels, three for IN endpoints and three for OUT endpoints.

USB Function	Note
USB_STP	ULPI stop signal
USB_DIR	ULPI direction signal
USB_CLK	USB clock
USB_NXT	ULPI next signal
USB_DAT0	USB data0
USB_DAT1	USB data1
USB_DAT2	USB data2
USB_DAT3	USB data3
USB_DAT4	USB data4
USB_DAT5	USB data5
USB_DAT6	USB data6
USB_DAT7	USB data7
USB_CS_PD	USB chip select
VBUS	Power supply for Asta USB block

Table 3-1-6. USB Signal Interface of Asta

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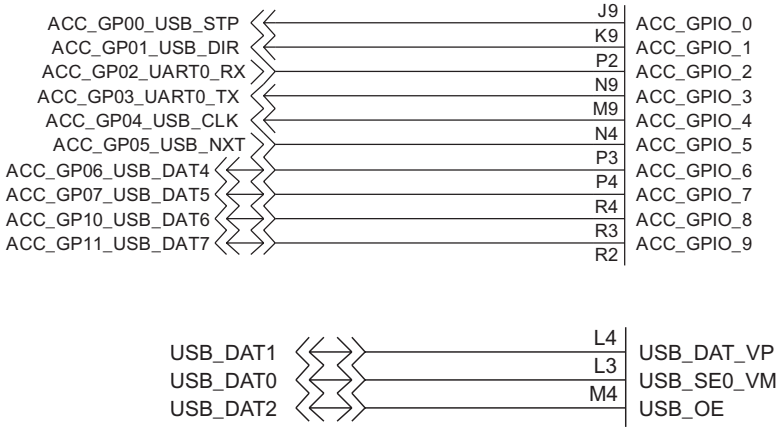
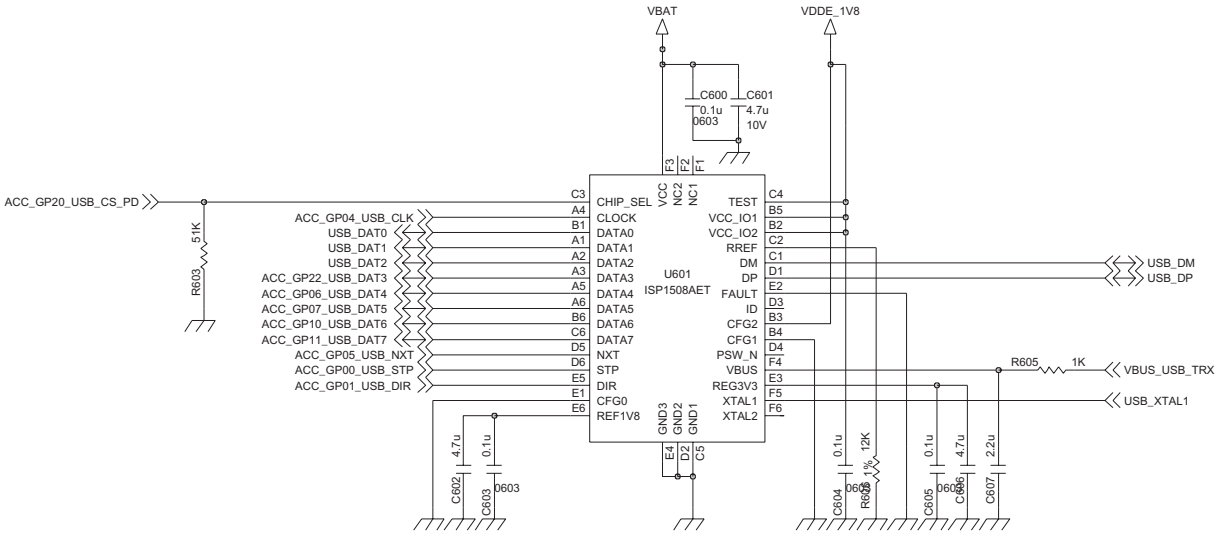


Figure 3-1-8. Schematic of Asta USB block



USB Transceiver for High Speed

Figure 3-1-9. Schematic of USB Transceiver

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3.1.9 Slider ON/OFF Detection

There is a magnet to detect the slide module status, up or down.

If a magnet is close to the hall-effect switch U101, the voltage at Pin 4 of U101 goes to 0V.

Otherwise 1.8V.

This SLIDE_DET signal is delivered to Asta ACC_GP15_FLIPSENSE.

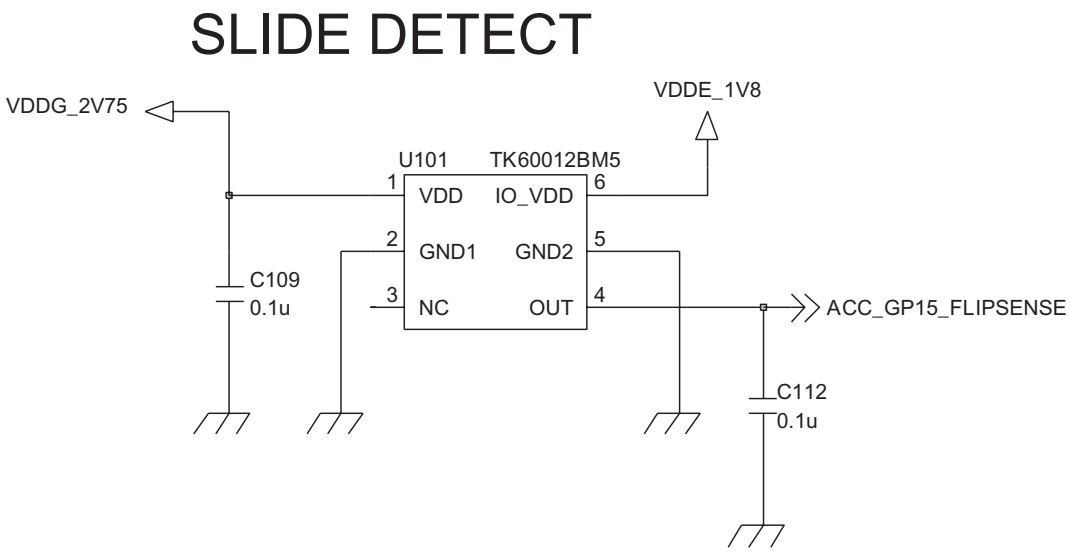

Figure 3-1-10. Slider On/Off Detector

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3.1.10 Bluetooth Interface

KF750 supports Bluetooth operation using STLC2593C Bluetooth module.

A. General Description

The Bluetooth interface utilizes the SPI interface for control signals going to and from the Bluetooth module. The SPI is also used for data transmissions.

It uses the PCM interface for transmitting audio to and from the Bluetooth module.

The Bluetooth module uses both the 26 MHz master clock signal and the 32,768 kHz low-frequency clock signal for internal timing within the Bluetooth module. The intention is to use the low-frequency clock as a low-power timing provider and to use the 26 MHz as a high precision timing reference used mainly by the Bluetooth radio during operation.

The clock request mechanism is used to minimize current consumption for the total system.

The intention is to use the CLKREQ signal to ask for the master clock when needed, for example, when the Bluetooth radio is operating.

B. SPI Interface

The physical SPI interface is made up of 5 signals : clock, chip select, data in, data out and interrupt. When the SPI mode is selected , these signals are available through the BT_UART and BT_HOST_WAKEUP pins.

The SPI interface is Master at the Host side, and Slave at the BT Controller side.

It is designed to work with the H4 protocol. It does not support HCI synchronous data packet transfer.

Data are transferred on the SPI interface in byte format, LSB first.

The SPI interface can operate only in half duplex mode.

C. PCM Interface

The PCM interface is used to send audio to and from the Bluetooth module. The interface is a synchronous interface using a PCM clock and a PCM sync signal for synchronization. Two data signals are used for data, one in each direction.

The PCM clock signal operates at frequencies as high as 1 MHz. The word length of the audio data can be 8 or 16 bits. Furthermore, the PCM interface has a function known as MP-PCM, which is an addressing scheme, used to have more than two devices talking on the bus.

To add this function, the data pins have to be bi-directional. Additionally, the position of the audio data relative to the frame sync pulse must be selectable. During the periods within a frame that a device is not transmitting audio data, it must put both PCM data signals in a high-impedance state to allow other devices access.

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D. Master Clock and Clock Request Interface

The master clock (MCLK) is a 26 MHz signal used as the high precision clock signal for the Bluetooth module. The signal can be switched on and off by the platform. The master clock request (CLKREQ) is used by the Bluetooth module to ask for the master clock.

If the Bluetooth module asserts the signal high, it gets the master clock. The other alternative for the Bluetooth module is to set the clock request output to high impedance state, indicating that it does not need the master clock. The Bluetooth module receives the master clock, if other parts of the chipset request it.

E. Low Frequency Clock Interface

The low-frequency clock signal (RTCCLK) is used by the Bluetooth module as a low-power clock. The clock is used in different Bluetooth modes, like sniff and park, to have a correct timing on the Bluetooth air interface without having the master clock running.

The low-frequency clock is always present, in some applications even when the chipset is powered down.

F. STLC2593C

■ WFBGA 5.0 x 7.5 x 0.8 mm lead-free/RoHs compliant 100 pins

■ External component: B-BPF (Bluetooth)

■ PCB footprint < 45mm2

■ Based on Ericsson Technology Licensing Baseband Core (EBC)

■ Bluetooth¢, specification compliance: V2.0 + EDR.

- Point-to-point, point-to-multi-point (up to 7 slaves) and scatternet capability
- Support ACL and SCO links
- Extended SCO (eSCO) links
- Faster Connection

■ HW support for packet types

- ACL: DM1, DM3, DM5, DH1, DH3, DH5, 2-DH1, 2-DH3, 2-DH5, 3-DH1, 3-DH3, 3-DH5
- SCO: HV1, HV3 and DV
- eSCO: EV3, EV4, EV5, 2-EV3, 2-EV5, 3-EV3, 3-EV5
- Adaptive Frequency Hopping (AFH)

■ Transmit Power

- Power Class 2 and Power Class 1.5 (above 4dBm)
- Programmable output power
- Power Class 1 compatible

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■ HCI
- HCI H4 Transport Layer
- HCI proprietary commands (e.g. peripherals control)
- Single HCI command for patch/upgrade download

■ Supports Pitch-Period Error Concealment (PPEC)

■ Efficient and flexible support for WLAN coexistence in collocated scenario

■ Low power consumption
- Ultra low power architecture with 3 different low-power levels
- Deep Sleep modes, including Host power saving feature
- Dual Wake-up mechanism: initiated by the Host or by the Bluetooth device

■ Communication interfaces
- Fast UART up to 4Mbit/s
- SPI interface
- PCM interface
- Up to 10 additional flexibly programmable GPIOs
- External interrupts possible through the GPIOs
- Fast master I2C interface

■ Clock support
- System clock input (digital or sine wave) at9.6, 10, 13, 16, 16.8, 19.2, 26, 33.6 or 38.4MHz
- Low Power clock input at 32.768 kHz

■ ARM7TDMI CPU

■ Memory organization
- On chip RAM, including provision for patches
- On chip ROM, preloaded with SW up to HCI

■ Ciphering support up to 128 bits key

■ Single power supply with internal regulators for core voltage generation

■ Supports 1.65 to 2.85 Volts IO systems

■ Auto calibration (VCO, Filters)

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G. KF750 Bluetooth Schematic

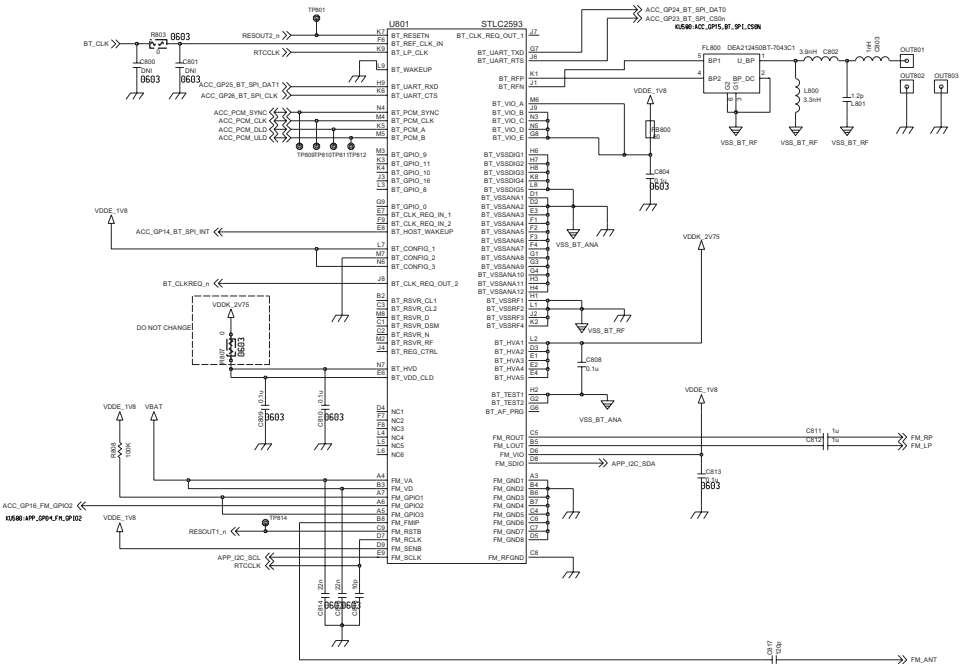

Figure 3-1-11. Schematic of STLC2593C

- Clock
  - Clock request
    → Connected to CLKREQ of Asta and Veronica, input to Gimly
  - Fast clock : 26MHz
    → Supplied MCLK from Gimly
    → Frequency deviation : ± 20ppm
  - Low power clock : 32.768kHz
    → Supplied RTCCLK from Veronica
- Power
  - Supplied 2.75V, 1.8V from internal regulators of Veronica
- Reset
  - RESOUT2_n signal of Asta controls STLC2593C reset.
- SPI
  - Connected to SPI of Asta
  - HCI interface between Asta and STLC2593C
- PCM
  - Audio signal interface between Asta/Veronica and STLC2593C
- ANT
  - 2.4GHz, 50 ohm matching

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3.1.11 MicroSD Interface card

KF750 supports the MicroSD card interface as external memory card.

MicroSD card has 4-data line, so KF750 uses 4-data line.

All control and data line is connected to Asta.

Cause of the difference between Asta and MicroSD card, a level shifter should be added.

MicroSD card Interface	
MICROSD_CMD	Command/Response
MICROSD_CLK	Clock
MICROSD_DAT	Data line
VDDG_2V75	Supply voltage from Veronica internal LDO

Table 3-1-7. MicroSD card Interface

• Card detection
- When there are no card in MicroSD card socket, REAL_MICROSD_DAT3 pin is high cause of an internal pull-up.
- If Card is inserted in socket, The pull up can be disconnected by using SET_CLR_DETECT command.
- VDDG_2V75 always supply power.

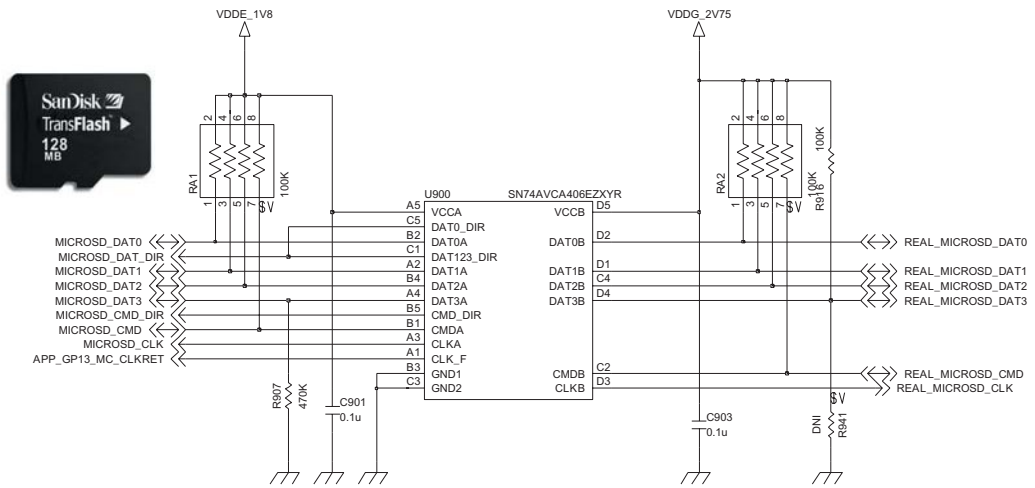

Figure 3-1-12. MicroSD card and Schematic of MicroSD card Interface

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3.1.1 Power On Sequence

① User presses END key and then ONSWAn signal is changed to Low.

② Veronica initiates the internal oscillator and powers on the regulators.

③ Veronica generates a power for Asta.

④ Veronica releases the power reset signal(PWRRSTn) and generates an interrupt(IRQ0n) to Asta.

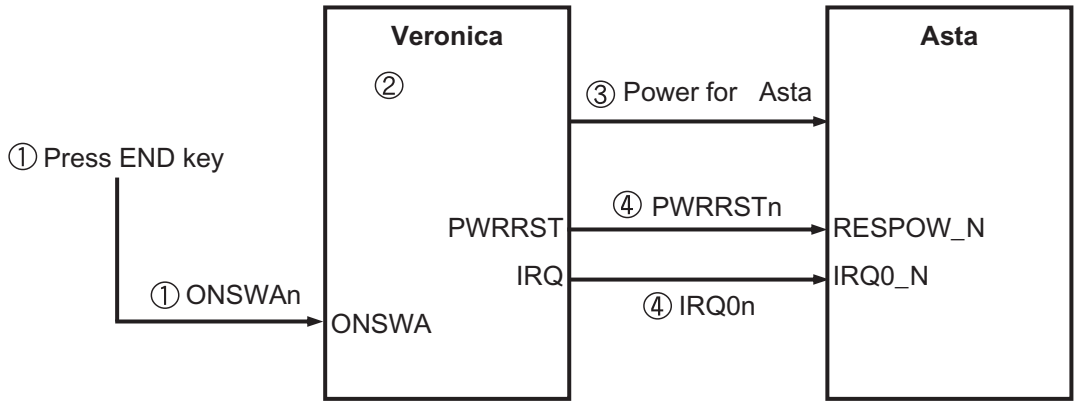

Figure 3-1-13. Power On Sequence

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3.1.13 KeyPad, Touch button and Touch screen

There are 21 buttons and 5 side keys and touch button in Figure 2-1-13/14. Shows the Keypad circuit. 'END' Key is connected ONSWAn for Veronica.

When Touch button and Touch screen is touched, Interrupt is given to Asta than, she read the status register what button is touched by I2C. I2C is realize by Asta GPIO.

	KEYIN0	KEYIN1	KEYIN2	KEYIN3	KEYIN4	KEYIN5
KEYOUT0	VOLUME1	VOLUME2				
KEYOUT1	1	2	3	MULTI	SEND	OK
KEYOUT2	4	5	6	CAMAF	CLR	
KEYOUT3	7	8	9	CAMSHOT		
KEYOUT4	*	0	#	HOME		

Table 3-1-8. Key Matrix Mapping Table

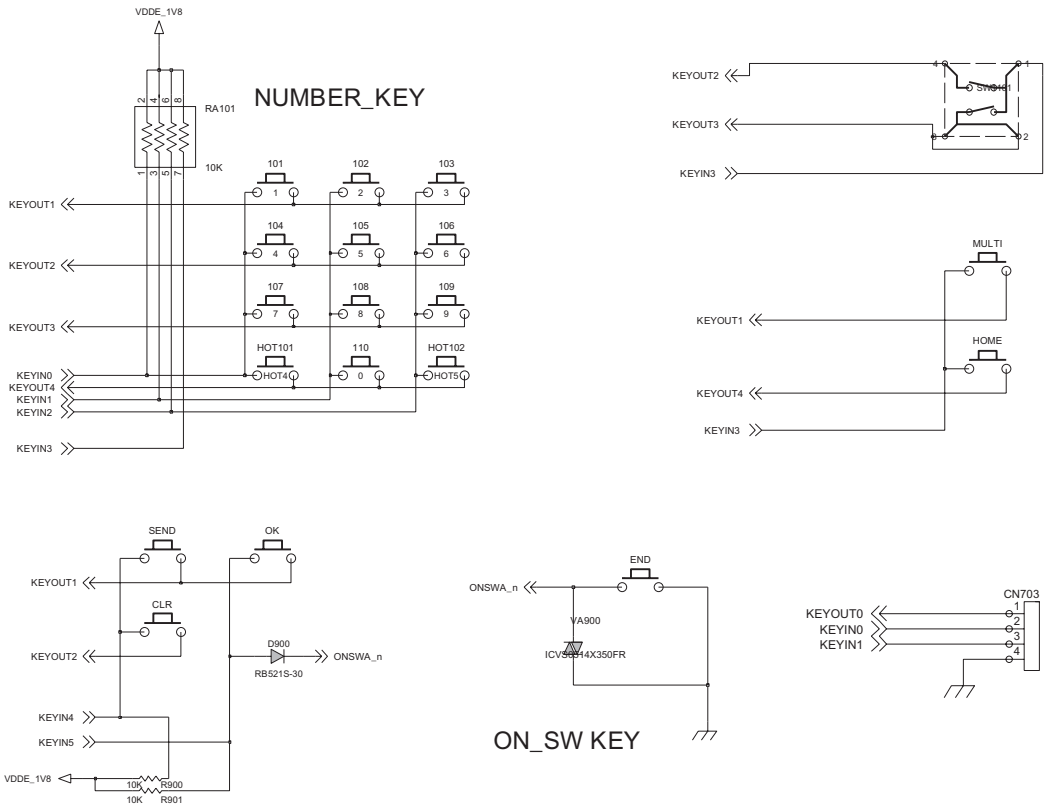

Figure 3-1-14. KEY CIRCUIT

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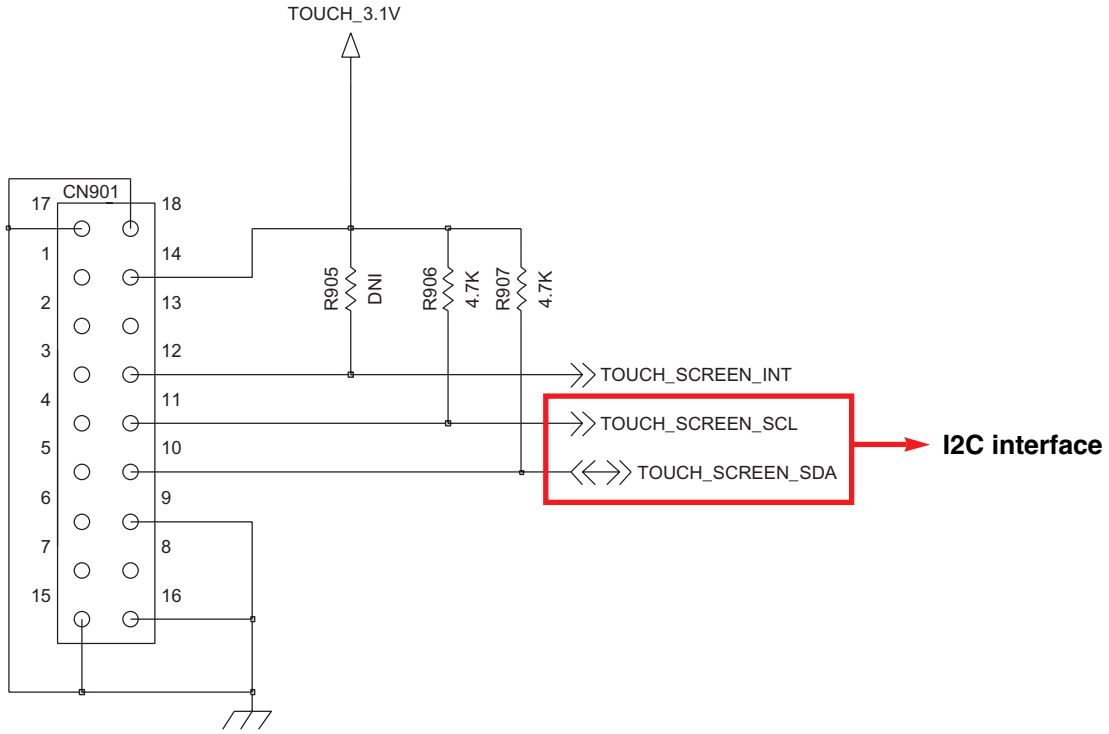

Figure 3-1-15. Touch button and Touch screen connector

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3.1.14 Multi EL lighting

There are 13 EL lighting channel. Each lighting channel is operated independently. EL controller(U901) control AC generator and EL driver(U900). AC generator generate 190V AC signal. And this 190V AC signal is switched by EL driver. Through EL driver, AC signal of the each lighting channel is switched independently. Finally, switched AC signal illuminate EL sheet.

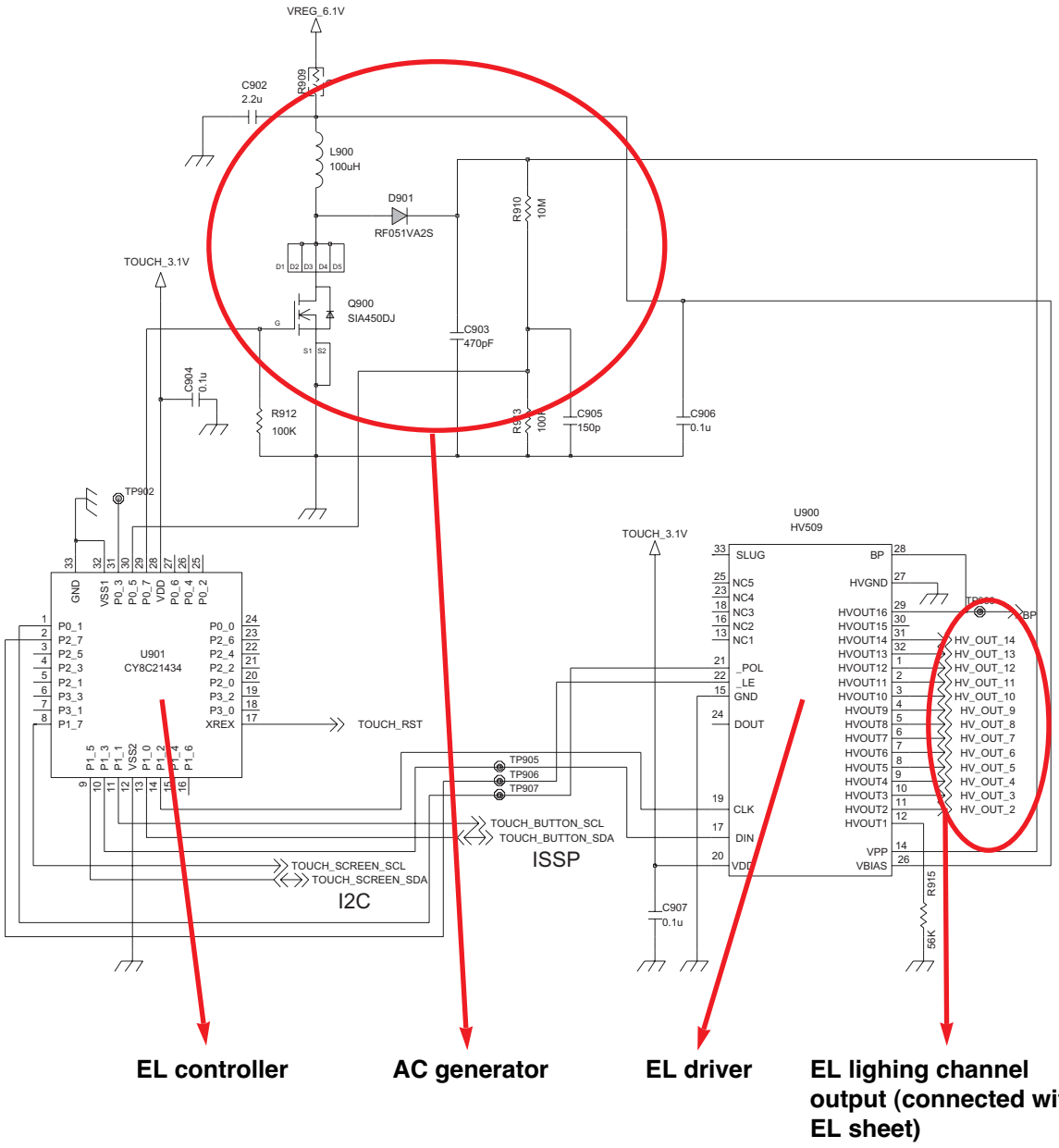

Figure 3-1-16. Multi EL lighting

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3.2 GAM Hardware Subsystem

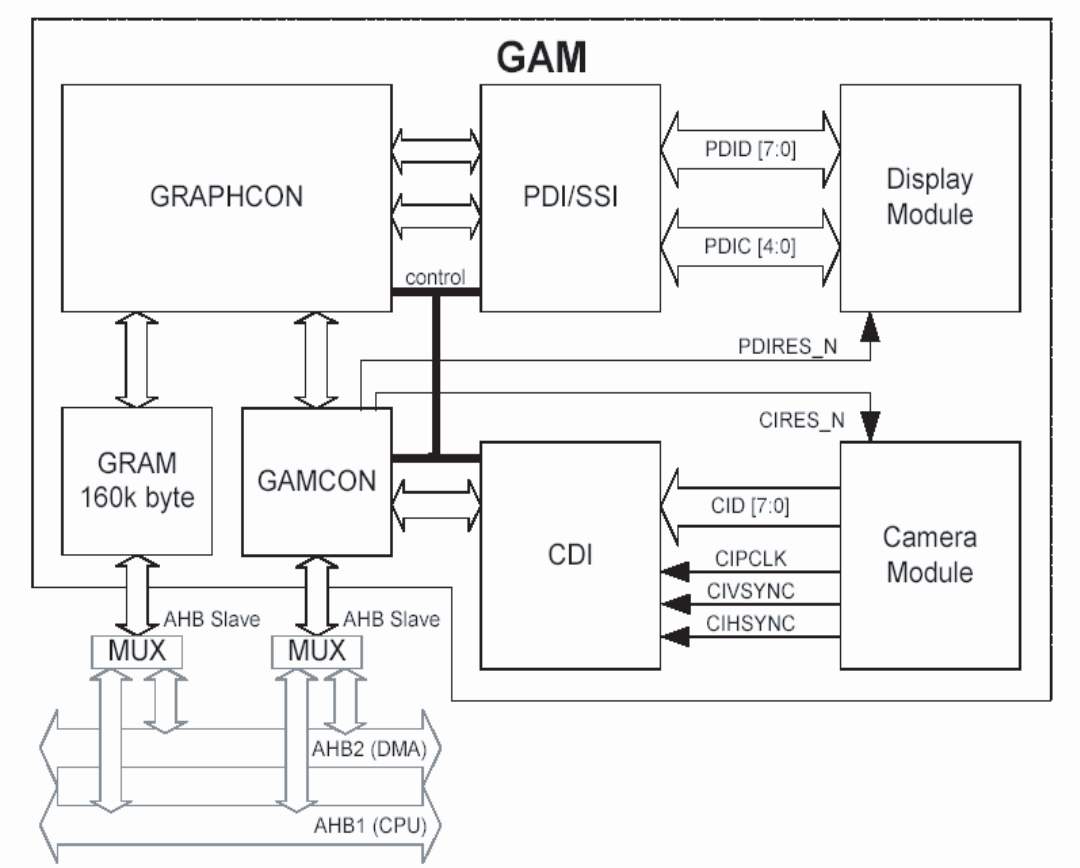

Figure 3-2-1. GAM Subsystem Functional Block Diagram

3.2.1 General Description

The Graphics Accelerator Module (GAM) subsystem provides hardware support in the creation of visual imagery and the transfer of this data to the display. GAM also provides support for the camera module. The visual data could be graphics, still images or video. The GAM subsystem consists of five modules:

- GRAM : graphics memory (160 kB).
- GAMCON : GAM controller.
- GRAPHCON : graphics controller.
- PDI/SSI : programmable display interface for parallel/serial displays.
- CDI : camera data interface.

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3.2.2 Block Description

A. GAM Controller(GAMCON)

The GAM Controller (GAMCON) is responsible for clock gating and distribution within the GAM module. GAMCON receives the HCLK from SYSCON and distributes to GRAPHCON, GRAM, PDI and CDI. GAMCON also distributes the GAM reset signal to GRAPHCON, GRAM, PDI and CDI.

The reset signals CIRES_N and PDIRES_N are distributed from GAMCON to the camera and display module respectively, see Figure 2.28. The CIPCLK is used to clock the received data into the camera data interface. The CIPCLK can be in the range of 100 kHz to 16 MHz.

B. Graphics RAM (GRAM) Block

GAM includes 160 kB of graphics memory (GRAM) in order to support display screen sizes of QCIF + alfa display size and three frame buffers when decoding QCIF video.

The GRAM can be accessed in 8, 16 or 32-bit mode. Write access takes a single AHB clock cycle. Non-sequential read and the first access of a sequential read access takes two AHB clock cycles. Subsequent sequential read access take a single AHB clock cycle.

The GRAM contains both frame buffer and temporary data. There are three image areas with one used for normal MMI graphics and the other two areas used for still images, video frames or camera frames. The three image areas can be combined into one frame buffer.

GRAM is required to transfer a VGA (640 by 480 pixels) image from the camera data interface (CDI) over DMA at 100 MBit/s, within a 50 ms timeframe. The GRAM is used as a buffer, but the average transfer bandwidth required is approximately 3 Mword/s (32-bit word), that is 12 MByte/s.

C. Graphics Controller (GRAPHCON) Block

GRAPHCON is controlled by the application CPU and can perform operations on pixels and image areas. Images can be moved and merged with other images and text.

The GRAPHCON block receives graphical objects from GRAM and performers the appropriate graphical manipulation. The resulting data is transfers to the display interface (PDI).

GRAPHCON can receive images from the camera data interface (CDI) and send them to the PDI automatically.

GRAPHCON performs conversion from YUV to RGB and can scale (zoom) still or video images.

D. Programmable Display Interface (PDI) Block

The programmable display interface (PDI) is designed to interface both parallel and serial display modules. The display data is transferred from the 32 word FIFO on GAMCON to the display module via the PDI block. The PDI block is built around a micro controller and executes 16-bit instruction words to individually control the I/O ports. It has a 128 byte program memory, programmable by the CPU, which can store up to 64 instructions.

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The CPU transfers all set-up and control data to the display. Data is transferred to PDI as 32- bit words, which in turn writes 8-bit data to the display. The programmable PDI block is configured at the software build stage, to support either parallel interface such as PPI or serial interface such as SSI or I2C.

E. Camera Data Interface (CDI) Block

The camera data interface (CDI) block is designed to support a range of still image camera modules. An 8-bit parallel bus supports data transfer from the camera module to the CDI.

The pixel clock is an output clock from the camera module to the CDI and qualifies the data on the parallel bus. One byte of data is captured on each rising edge of the pixel clock. CDI allows the pixel clock to be in the range of 100 kHz to 16 MHz.

The horizontal synchronization line is an input from the camera module and defines one scanline of image data. The horizontal synchronization line can be programmed to be active high or low. The vertical synchronization line is an input from the camera module and defines one image frame (image height) of data. The vertical synchronization line can be programmed to be active high or low.

The frame rate can be adjusted by skipping frames and various interrupts are used to inform the application CPU regarding the progress of incoming images and potential errors. The normal data format on the data bus is YUV 4:2:2 (raw binary image data) according to the CCIR-656 standard. A function within the CDI can be programmed to reorder the YUV parameters as they pass through the CDI. In addition, the CDI is able to detect the end of an image and perform some truncation as well as overflow conditions. There is nothing preventing the use of other data types such as JPEG or RGB (as long as the timing is followed), but only YUV data can be sent to the display.

Camera images can also be sent to a DMA channel to store the image in external memory.

The I2C interface and GPIO are part of the interface to the camera module, but they are not part of the CDI block. The I2C is used to set-up and control the camera module.

The camera module I2C lines must go high impedance when the supply is removed from the camera. The I2C commands needed to control the camera, as well as the functional behavior of the module, are also different for each implementation.

The ON-signal (GPIO) is used to power-on the camera from Standby or Off mode (implementation dependent). This signal must be held low when the mobile equipment is powered down and during the mobile equipment reset period. The GPIO pin can also be an input or high impedance during mobile equipment reset and start. In this case, it must have pull-down to ground.

The camera module reset signal is an output to the camera module.

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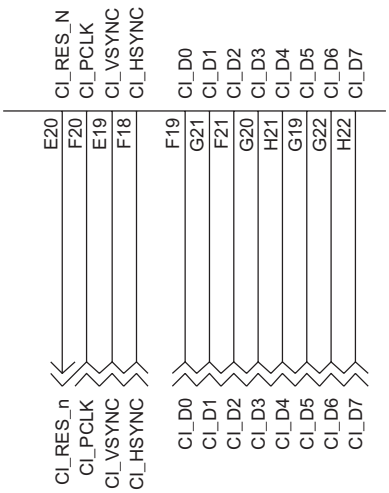
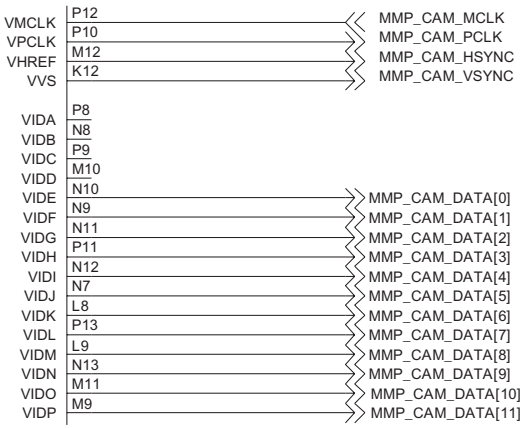
3.2.3 Camera & Camera Interface



VGA Camera



5 Mega Camera

Figure 3-2-2. Camera Interface (DB3150 and Zoran)

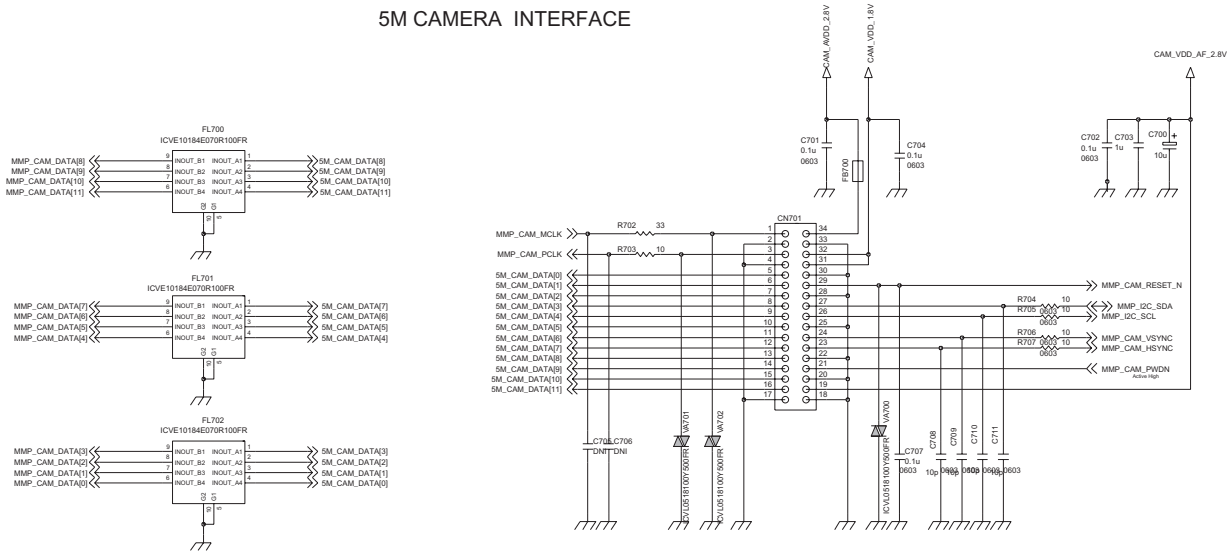


Figure 3-2-3. 5M Camera Connector(34Pin - Main Board)

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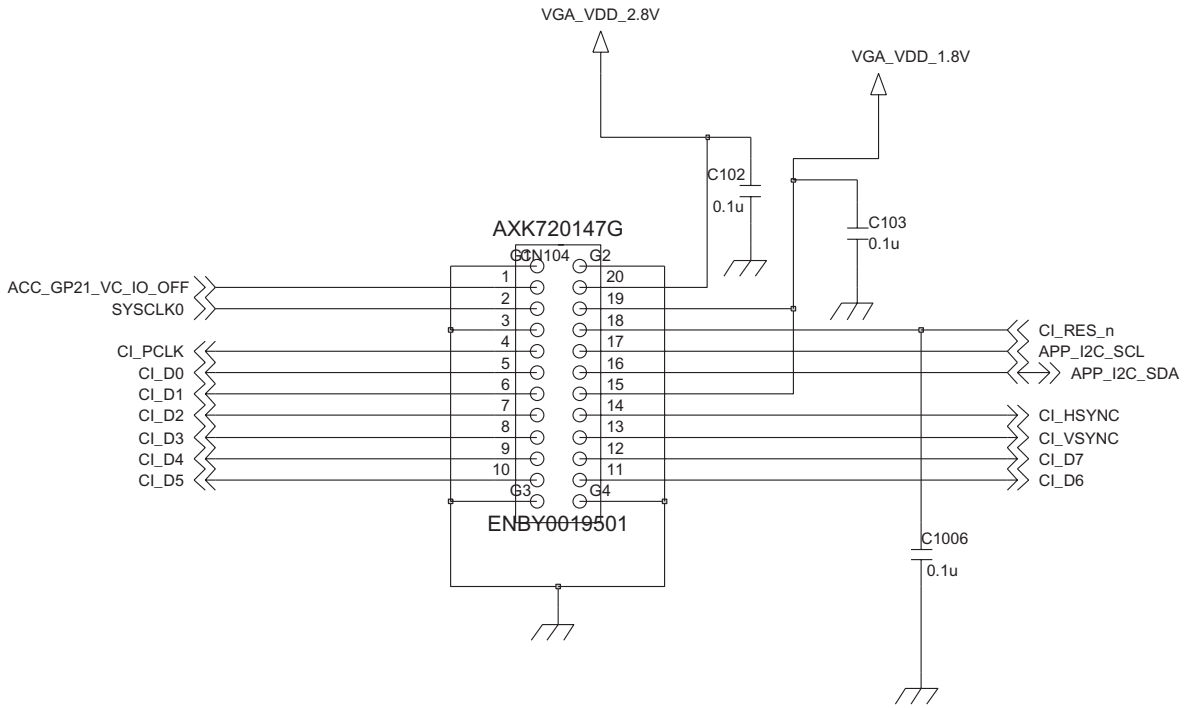

Figure 3-2-5. VGA LCD FPCB Connector

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The 5M Camera modules are connected to 34-pin main board and VGA Camera module is connected to LCD FPCB with 20-pin Board to Board through 70 pin Board to Board connector.

VGA interface is dedicated camera interface port in DB3150, but 5 Mega camera is connected to MMIC (Multi-media IC).

5 mega camera supply 24MHz master clock to camera module and receive 80MHz pixel clock(30fps), vertical sync signal, horizontal sync signal, reset signal and 8bits YUV data from camera module. The camera module is controlled by I2C port.

VGA camera port supply 24MHz master clock to camera module and receive 32.2MHz pixel clock(15fps), vertical sync signal, horizontal sync signal, reset signal and 8bits YUV data from camera module. The camera module is controlled by I2C port.

Pin	Symbol	Symbol	Pin
1	MMP_CAM_MCLK	CAM_AVDD_2.8V	34
2	GND	GND	33
3	MMP_CAM_PCLK	CAM_VDD_1.8V	32
4	GND	CAM_VDD_1.8V	31
5	5M_CAM_DATA[0]	GND	30
6	5M_CAM_DATA[1]	MMP_CAM_RESET_N	29
7	5M_CAM_DATA[2]	GND	28
8	5M_CAM_DATA[3]	MMP_I2C_SDA	27
9	5M_CAM_DATA[4]	MMP_I2C_SCL	26
10	5M_CAM_DATA[5]	GND	25
11	5M_CAM_DATA[6]	MMP_CAM_VSYNC	24
12	5M_CAM_DATA[7]	MMP_CAM_HSYNC	23
13	5M_CAM_DATA[8]	GND	22
14	5M_CAM_DATA[9]	MMP_CAM_PWDN	21
15	5M_CAM_DATA[10]	GND	20
16	5M_CAM_DATA[11]	CAM_VDD_AF_2.8V	19
17	GND	GND 1	8

Table 3-2-1. Interface between Main board and 5M camera

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Pin	Symbol	Symbol	Pin
1	ACC_GP21_VC_IO_OFF	VGA_VDD_2.8V	20
2	SYSCLK0	VGA_VDD_1.8V	19
3	GND	CI_RES_n	18
4	CI_PCLK	APP_I2C_SCL	17
5	CI_D0	APP_I2C_SDA	16
6	CI_D1	VGA_VDD_1.8V	15
7	CI_D2	CI_HSYNC	14
8	CI_D3	CI_VSYNC	13
9	CI_D4	CI_D7	12
10	CI_D5	CI_D6	11

Table 3-2-2. Interface between VGA Camera Module

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3.2.4 Camera Regulator

MMP_CAM_PWR_EN enables 1.8V & 2.8V Camera Regulator for 5M Camera.

(2.8V for analog and AF, 1.8V for I/O, 1.5V for digital)

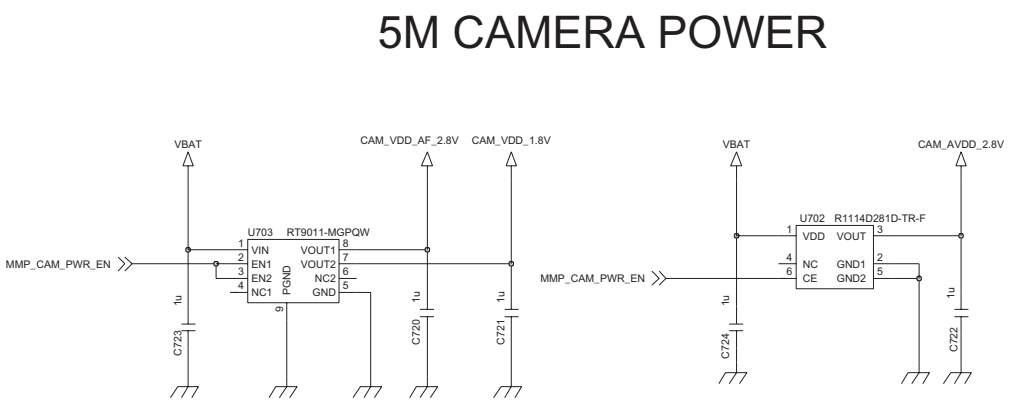

Figure 3-2-6. 1.8V and 2.8V Camera Regulator

SUB PMIC gives power to VGA camera.

It controlled by I2C (VGA : 2.8V for analog, 1.8V for I/O, digital)

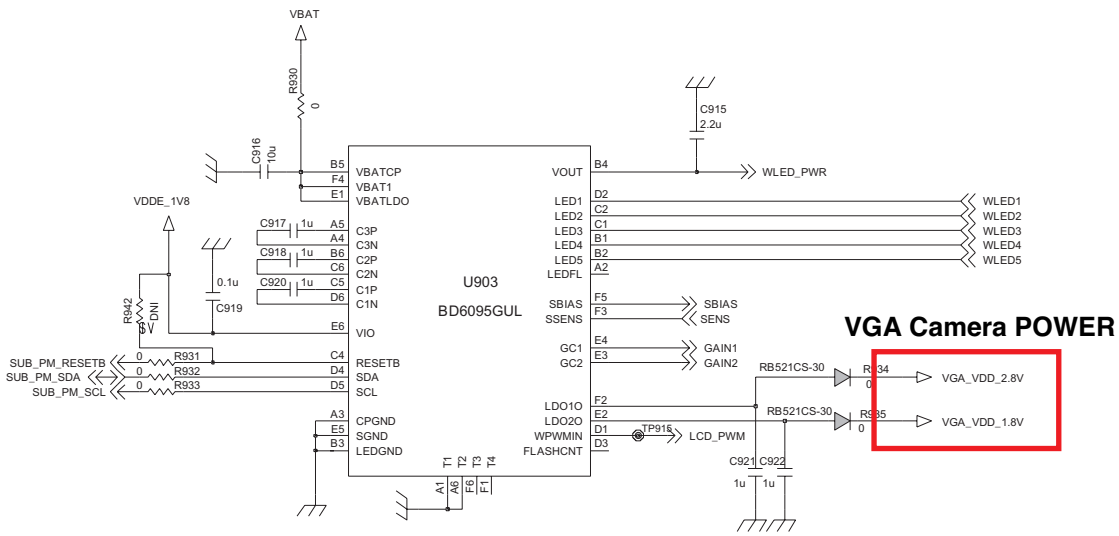

Figure 3-2-7. VGA Camera LDO in SUB PMIC

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3.2.5 Display & LCD FPC Interface

LCD module include device in table 3-2

Type	Device
Main LCD	240 x RGB x 320 262K Color TFT LCD
Main LCD Backlight	5 White LEDs

Table 3-2-3. Device in LCD Module

LCD Module is connected to multi Key PCB with 37-pin Connector in sub PCB.

The LCD is controlled by 8-bit PDI(Parallel Data Interface) in DB3150.

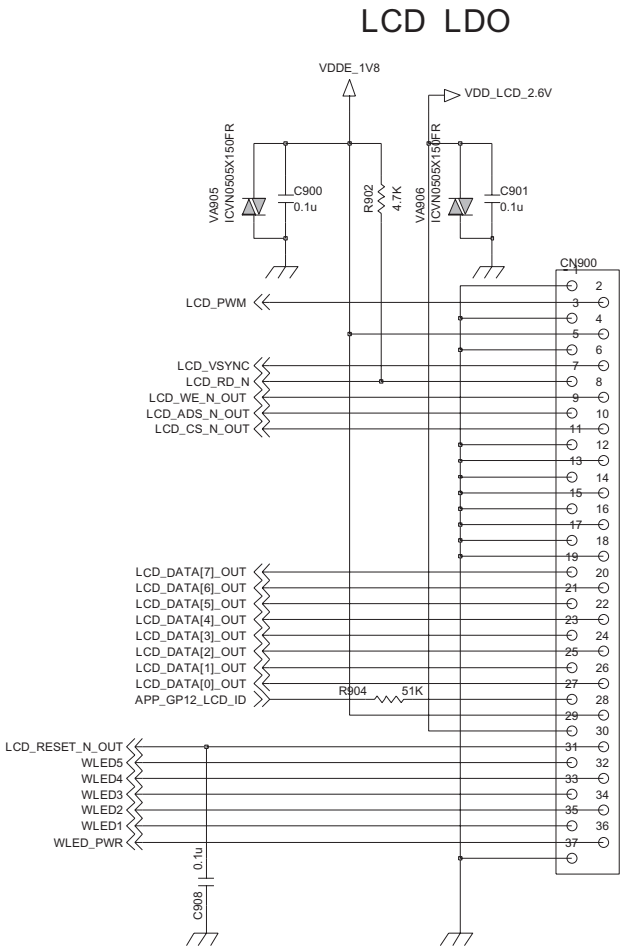

Table 3-2-4. LCD module Connector

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3.2.6 LCD Module Block diagram

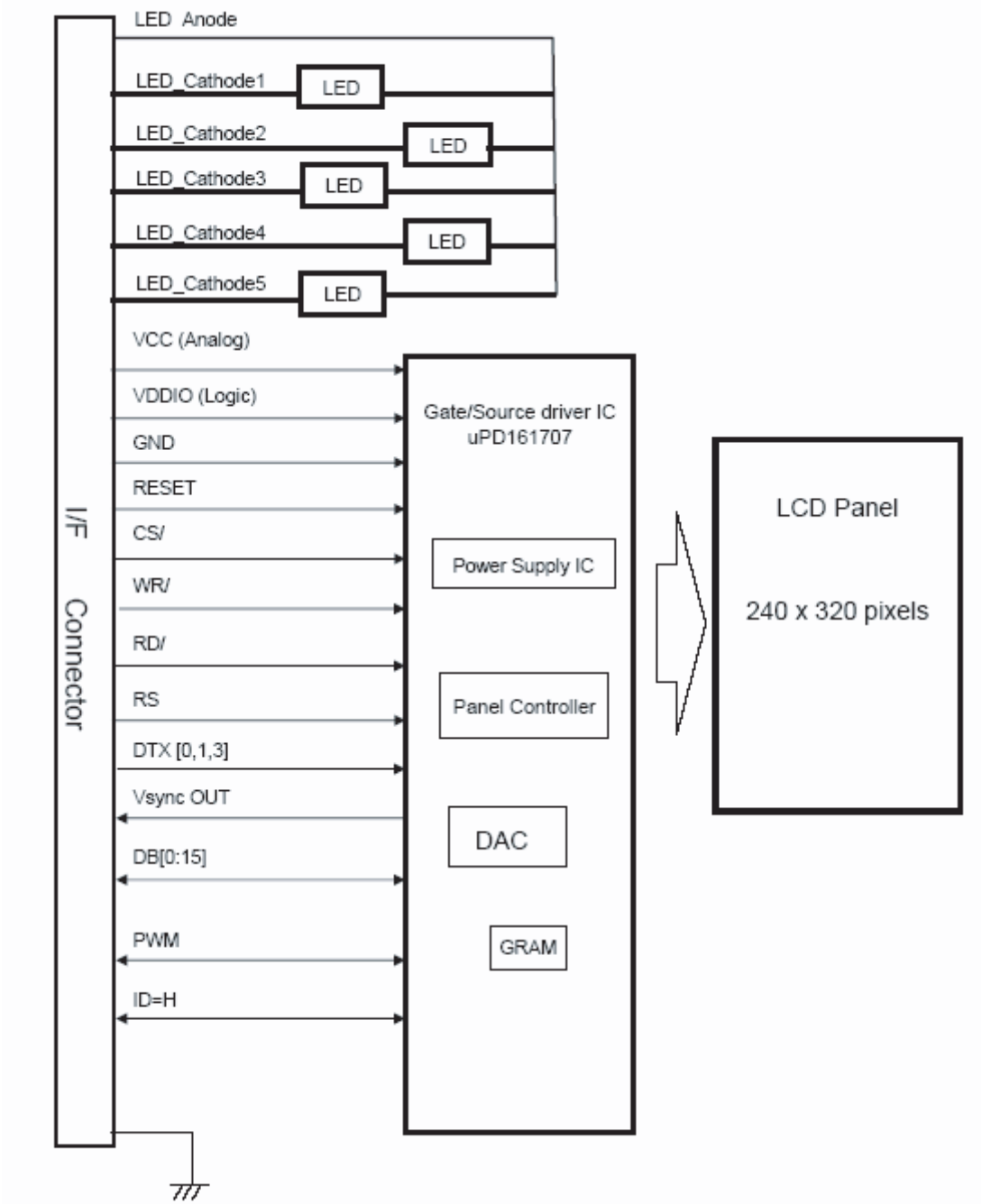

Figure 3-2-9. LCD Module Block diagram

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3.2.7 LCD Backlight Illumination

There are 5 white LEDs in LCD Backlight circuit which is driven SUB PMIC(BD6095).I2C is used for Backlight brightness control.

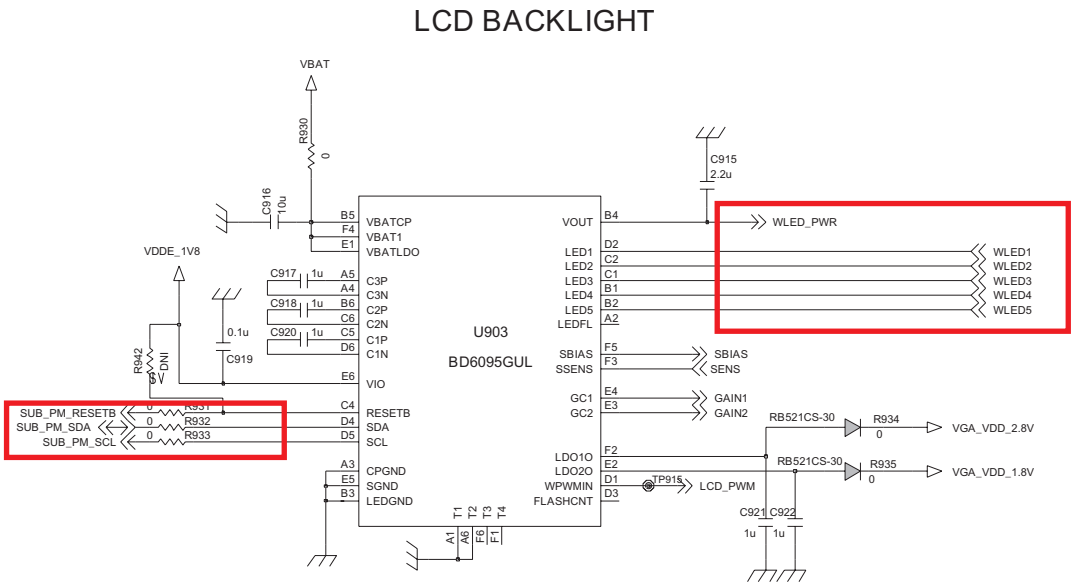

Figure 3-2-10. SUB PMIC Circuit LCD Backlight

3.2.8 Keypad Illumination

There are 2 WHITE LEDs in Main board backlight circuit, which are driven by LEDC port in ABB (Veronica) and light guide is used for luminance Uniformity

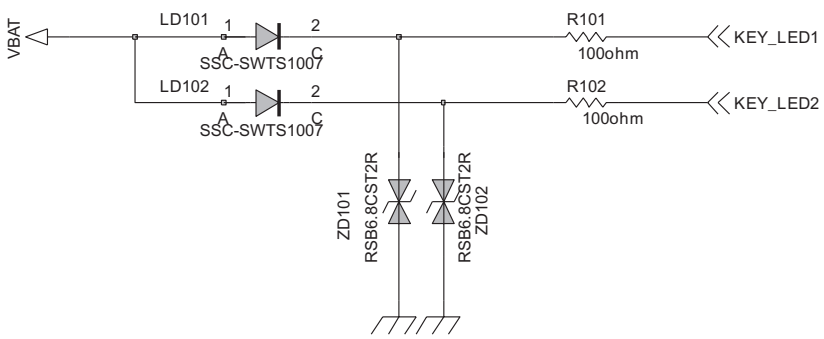

Figure 3-2-11. Keypad Backlight LED Interface and Backlight Circuit

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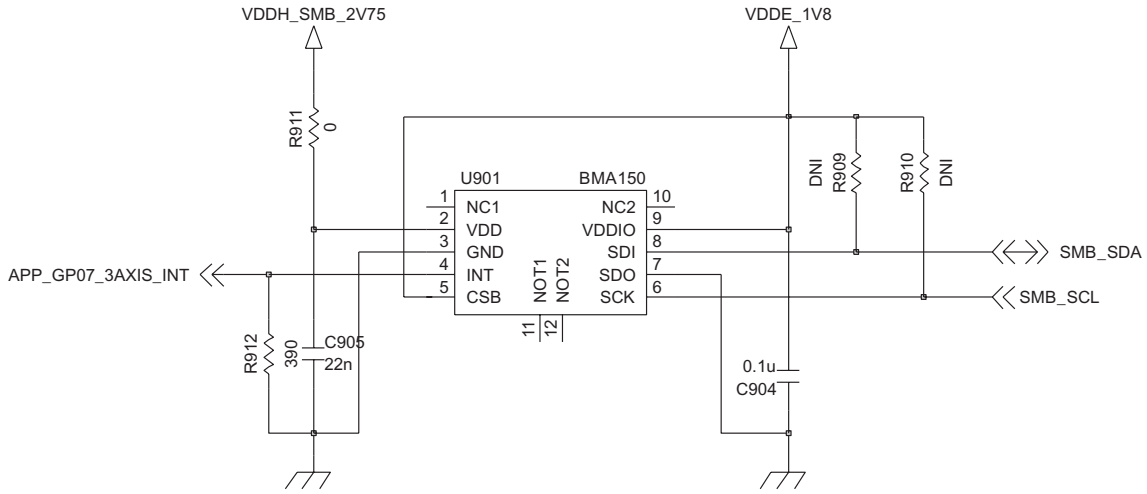
3.2.9 Three-axis-accelerometer

The SMB380 is a triaxial low-g acceleration sensor IC with digital output for motion applications. It allows measurements of acceleration in perpendicular axes as well as absolute temperature measurement. If Motion is detected, then interrupt is issued to CPU and CPU read its motion value by I2C(SMB_SDA,SMB_SCL) interface.



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3.3 Audio Part

3.3.1 Audio Part Block Diagram

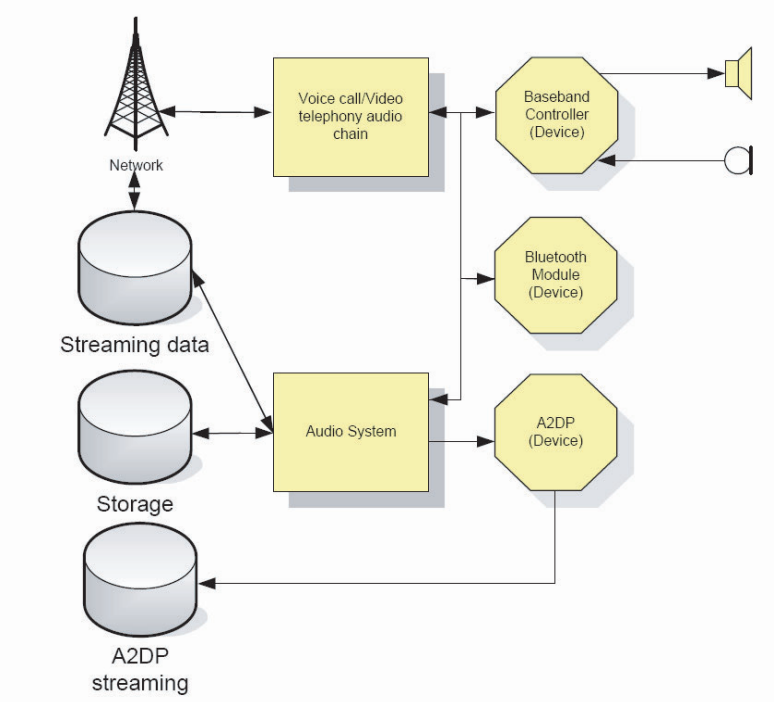

Figure 3-3-1. Audio Part Block Diagram

3.3.2 Audio Signal Processing & Interface

Audio signal processing is divided Uplink path and downlink path.

The uplink path amplifies the audio signal from MIC and converts this analog signal to digital signal and then transmit it to DBB Chip (Asta).

This transmitted signal is reformed to fit in GSM & WCDMA Frame format and delivered to RF Chip.

The downlink path amplifies the signal from DBB chip (Asta) and outputs it to Receiver (or Speaker).

The audio interface consists of PCM encoding and decoding circuitry, microphone amplifiers and earphone drivers.

The PCM encoder and decoder blocks are two-channel, 16-bit circuits with programmable gain amplifiers (PGA).

The decoder has a receive volume control. The audio inputs and outputs can be switched to normal or auxiliary ports.

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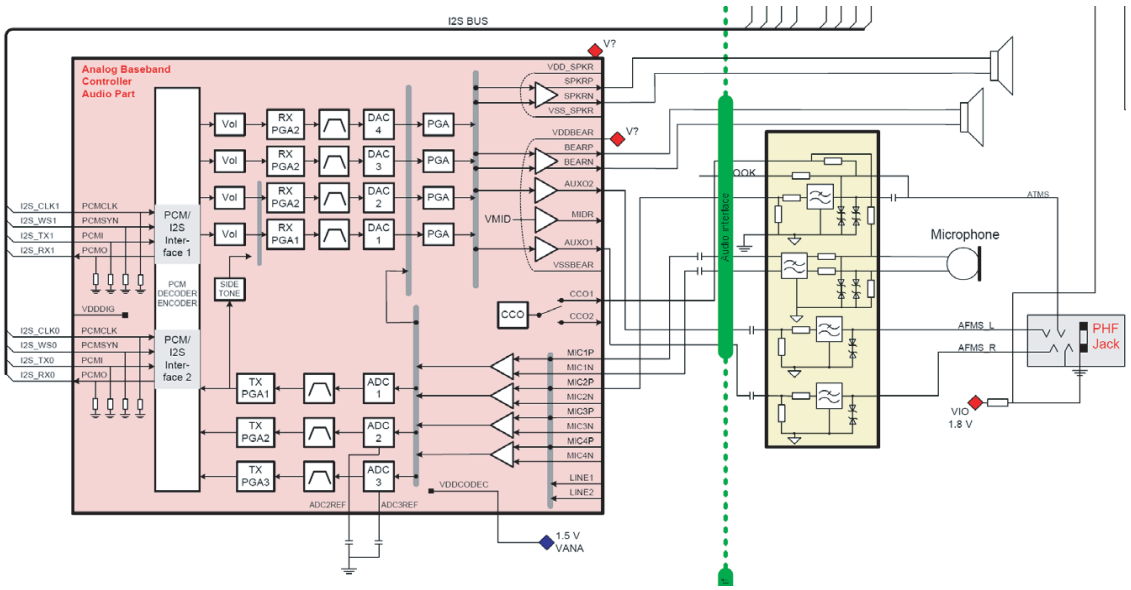

Figure 3-3-2. Audio Interface Detailed Diagram(Veronica)

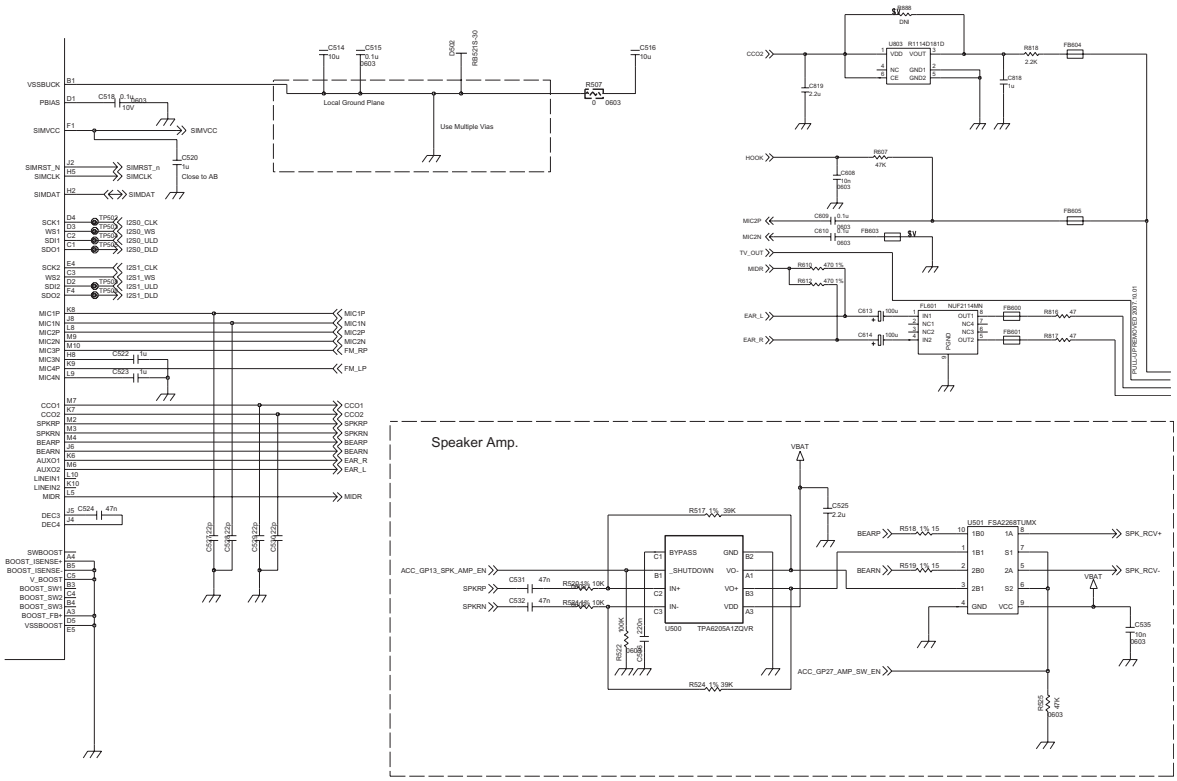

Figure 3-3-3 . Audio Section scheme

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3.3.3 Audio Mode

Audio Mode includes three states.(Voice call, Midi.MP3).

Each states is sorted by the total 7 Modes according to external Devices (Receiver,Loud Speaker,Headset).

Video Telephony Mode Operate on state of the WCDMA CALL.

Mode		Veronica In /Out Port	
		IN	OUT
Voice call	Receiver Mode	MIC1P/MIC1N	BEARP/BEARN
	Loud Speaker Mode	MIC1P/MIC1N	SPKRP/SPKRN
	Headset Mode	MIC2P/MIC2N	AUXO1/AUXO2
	Video Telephony Mode	MIC1P/MIC1N	SPKRP/SPKRN
MIDI	Only Loud Speaker		SPKRP/SPKRN
MP3	Loud Speaker Mode		SPKR/SPKN
	Headset Mode		AUXO1/AUXO2

Table 3-3-1. Audio Mode

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3.3.4 Voice Call

A. Voice call Downlink Mode(Receiver, Speaker, Headset)

This section provides a detailed description of the Voice Call RX functions.

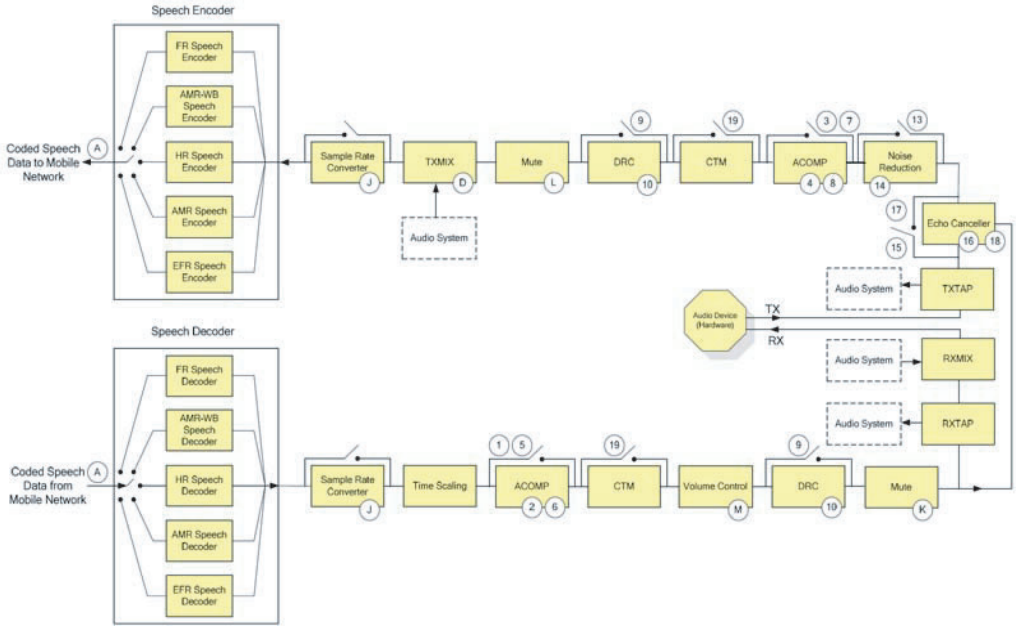

Figure 3-3-4. Voice call Downlink Scheme

The voice decoder accepts a serial input stream of linear PCM coded speech. The receive bandpass filter is the next step in the CODEC receive path. Following the filter is the DAC, followed by a PGA enabling to adjust or trim the circuit in the product for different sensitivity of the earphone and spread in the RX path. The final step in the receive path is the auxiliary output. The auxiliary audio amplifier is intended to drive low impedance headphones. The earphone amplifier and the auxiliary audio outputs can be powered down (muted) via I2C. Both the earphone driver and one of the auxiliary drivers can simultaneously provide an output signal during voice decoding.

• Receiver Mode : BEARP/N Port → Receiver(32Ω)

• Loud Speaker / Video Telephony Mode : Veronica SPK Amp → SPKR/N → AUDIO AMP(TPA6205) → Speaker(8Ω)

• Headset Mode : Auxiliary audio amplifier → AUXO1/2 → AUDIO AMP(TPA4411) → Head Phone

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B. Voice Call Uplink Mode (Receiver,Speaker,Headset)

This section provides a detailed description of the Voice Call TX functions.

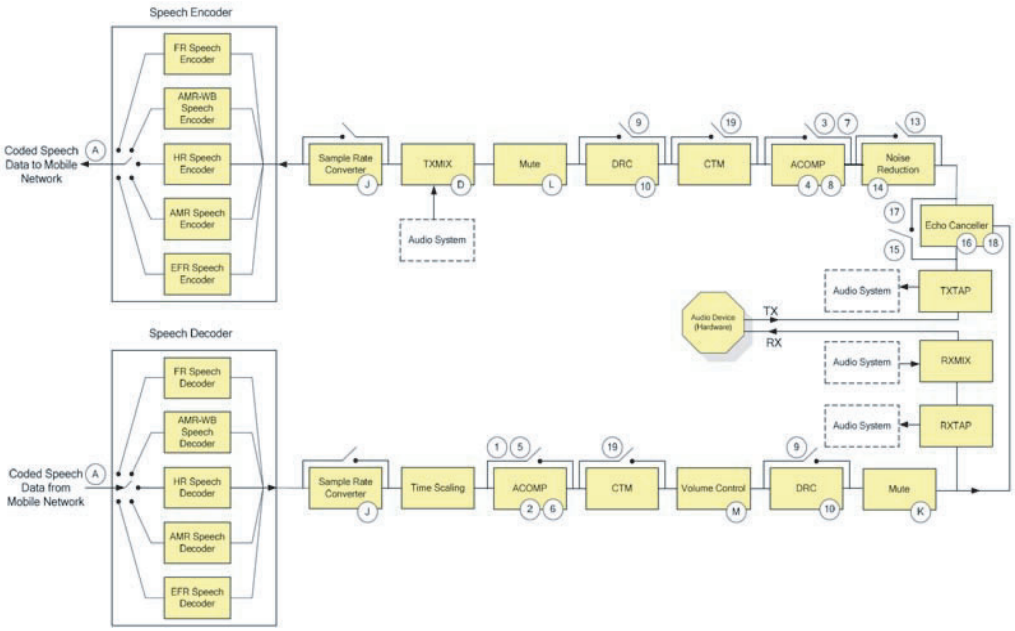

Figure 3-3-5. Voice call Uplink Scheme

From the audio path view point, voice call has the same structure as video telephony. The TXMIX connection enables insertion of audio into the uplink audio path. This can, for example, be used to play dictation recordings for the listener at the other party, in a voice call or video telephony call. The connection to TXMIX from the Audio Mixer must be performed in 8 kHz mono, since this is supported by the Voice mode. Due to performance reasons it may not be possible to decode every audio format during video telephony.

Each Voice Uplink Mode paths shown below.

• Receiver Mode : C-MIC(SP0102BE3) → Veronica Input(MIC1N/1P)

• Loud Speaker Mode : C-MIC(SP0102BE3) → Veronica Input(MIC1N/1P)

• Video Telephony Mode : C-MIC(SP0102BE3) → Veronica Input(MIC1N/1P)

• Headset Mode : Headset MIC → Veronica Input(AUXI1N/1P)

When the headset is inserted, EAR_DETECT_n(Circuit Diagram net Name) converted into low state So, the headset icon is displayed on Main LCD.

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3.3.5 MIDI (Ring Tone Play)

This section provides a detailed description of the MIDI and WAV-file functions.

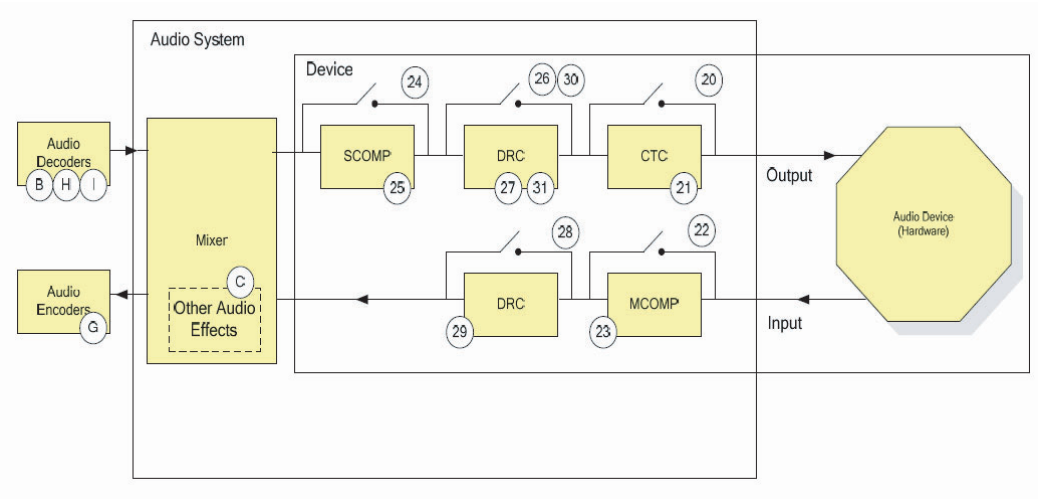

Figure 3-3-6. External MIDI path

In Figure 2-4-6, External MIDI path is the same as Voice Loudspeaker downlink Mode, except source in Asta (DSP and Audio Mixer).

MIDI : Asta → PCM Decoder → Auxiliary audio amplifier → SPKRP/N Port → AUDIO AMP(TPA6205) → Speaker(8Ω)

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3.3.6 MP3 (Audio Player)

This section provides a detailed description of the MP3 file functions.

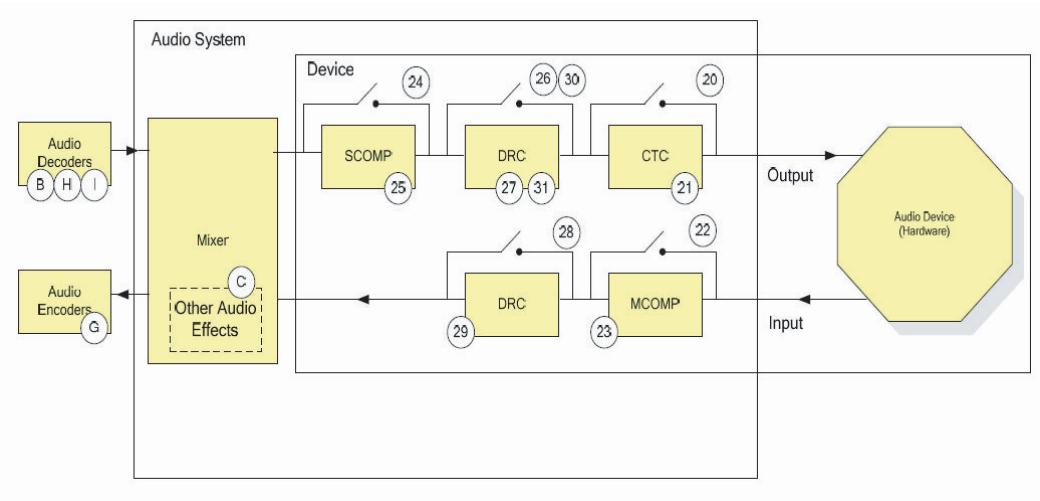

Figure 3-3-7. MP3 Scheme

MP3 function supports PCM 44/48KHz sampling rate.The PCM44/48 RX-path is intended to be used as a audio amp and one speaker.

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3.3.7 Video Telephony

This section provides a description of the Video Telephony functions.

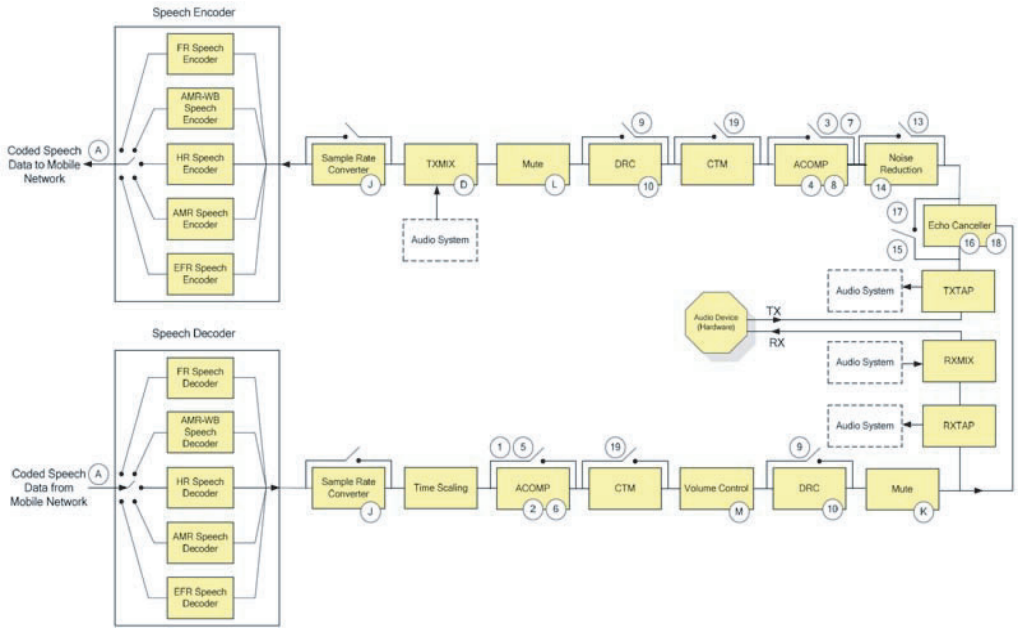

Figure 3-3-8. Video Telephony Scheme

Video Telephony Mode has same paths with Loud Speaker Mode.

3.3.8 Audio Main Component

There are 4 components in KF750 schematic Diagram. Part Number marked on KF750 Schematic Diagram.

NO	ITEM	PART NUMBER	MAKER
1	Speaker/Receiver	BRS201417SL08-P	
2	MIC	SP0102BE3	Sisonic
3	Audio AMP	TPA6205A/TPA4411	TI
4	Ear-Jack SET	SGEY0005527	I - sound

Table 3-3-2. Audio Component List

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3.4 GPADC(General Purpose ADC) and AUTOADC2

The GPADC consists of a 14 input MUX and an 8-bit ADC. The analog input signal is selected with the MUX and converted in the ADC.

The GPADC has a built in controller, AUTOADC2, which is able to operate in the background without software intervention. The AUTOADC2 periodically measures the battery voltage or current. (Fig.3-4-1) shows the schematic of GPADC part. The GPADC channel spec is as following (Table 3-4-1).

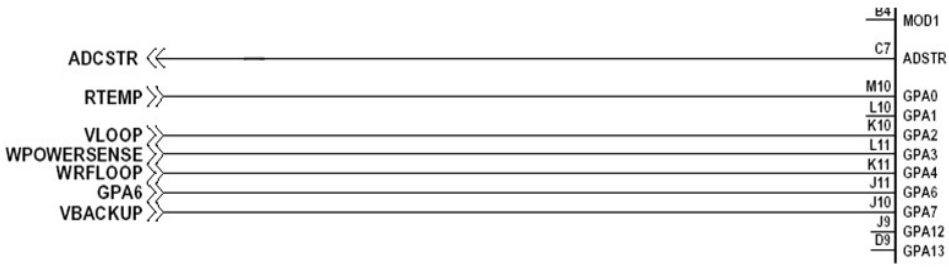

Fig 3-4-1. Schematic of GPADC and AUTOADC2

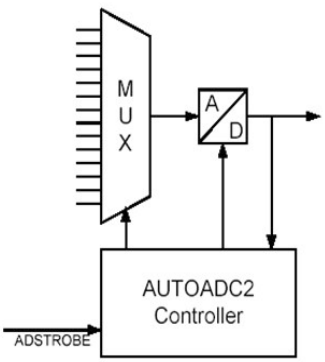

Fig 3-4-2. GPADC and AUTOADC2 Block diagram

ADC 6 channels		
Resource	Name	Description
GPA0	RTEMP	Radio temperature sense
GPA2	VLOOP	Loop voltage sense
GPA3	WPOWERSENSE	Reference voltage for PAM
GPA4	WRFLOOP	Lock inform
GPA6	GPA6	Headset detect
GPA7	VBACKUP	Backup battery

Table 3-4-1. GPADC channel spec

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3.5 Charger control

A programmable charger in AB3000 is used for battery charging. It is possible to set limits for the output voltage at CHSENSE- and the output current from DCIO via the sense resistor to CHSENSE-. The voltage at CHSENSE- and the current feed to CHSENSE- cannot be measured directly by the GPADC. Instead, the two measuring amplifiers translate these inputs to a voltage proportional to the input and within the range of the GPADC. (Fig.3-5-1) shows the schematic of charging control part.

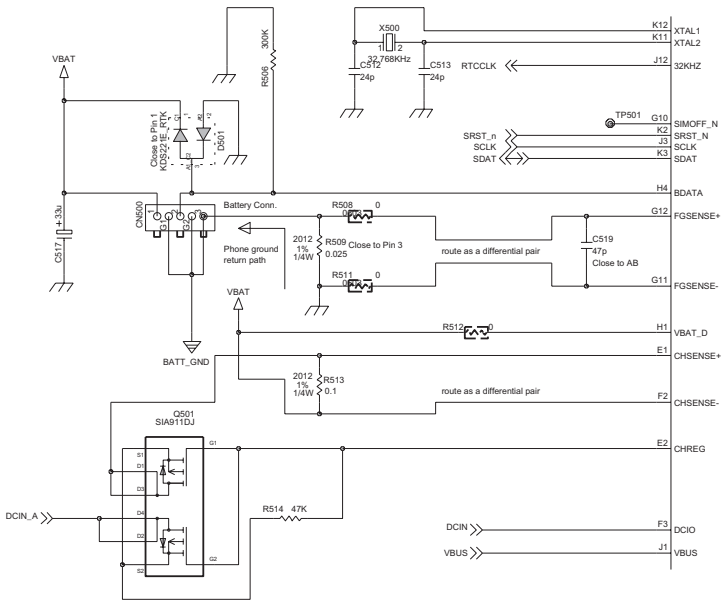

Fig. 3-5-1. Battery charging circuit

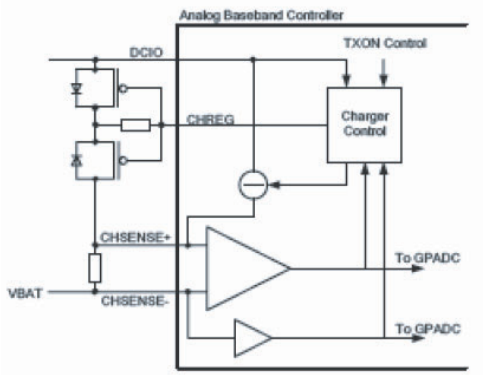

Fig. 3-5-2. Battery charging block diagram

Name	Type	Unused	Description
CHSENSE+	Analog	VBAT	Current sensing input positive
CHSENSE-	Analog	VBAT	Current sensing input negative

Table 3-5-1. Charger Control channel spec

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3.5.1 Fuel Gauge

AB3000 supports the measurement of the current consumption/charging current in the U8100 with a fuel gauge block. By constantly integrating the current flowing into and out of the battery, the fuel gauge block is used to determine the remaining battery capacity.

The function of the fuel gauge block is schematically described in (Fig.3-5-3). A sense resistor R_FGSENSE is connected in series with the battery. The voltage across the resistor, equivalent to the current entering/leaving the battery, is integrated using an ADC block.

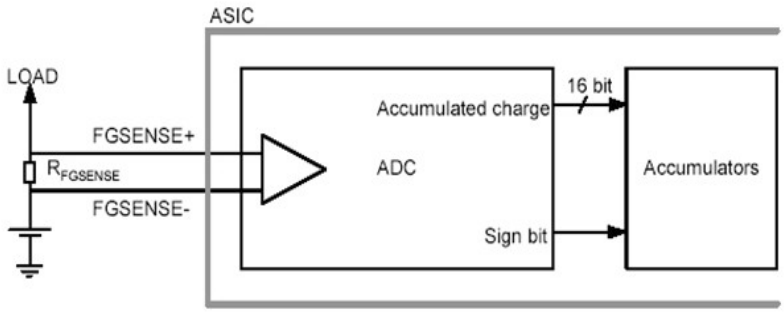

Fig. 3-5-3. The analog front-end of the fuel gauge block

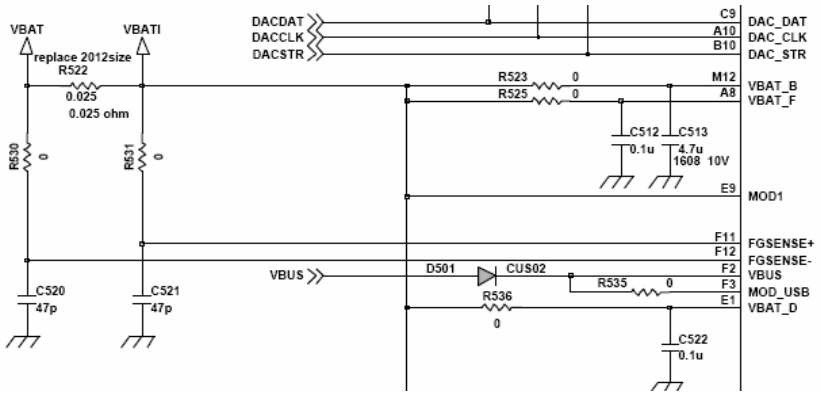

Fig. 3-5-4 The Schematic of the fuel gauge block

Name	Type	Unused	Description
FGSENSE+	Analog	VBAT	Fuel gauge current sensing input positive
FGSENSE-	Analog	VBAT	Fuel gauge current sensing input negative

Table 3-5-2. Fuel Gauge channel spec

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3.5.2 Battery Temperature Measurement

The BDATA node, the constant current source, feed the battery data output while monitoring the voltage at the battery data node with GPADC. This battery data is converted to the battery temperature. (Fig.3-5-5) shows the schematic of battery temperature measurement part.

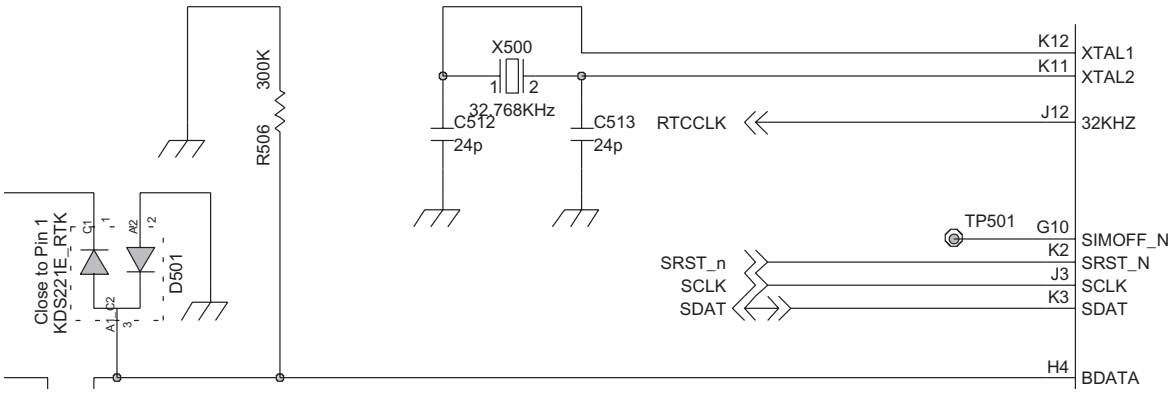

Fig 3-5-5. Battery Temperature Measurement

Name	Type	Unused	Description
BDATA	Digital Input/Output	Unconnected	current output

Table 3-5-3 BDATA channel spec

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3.5.3 Charging Part

The charging block in AB3000 processes the charging operation by using VBAT voltage. It is enabled or disabled by the assertion/negation of the external signal DCIO. Part of the charging block are activated and deactivated depending on the level of VBAT. (Fig.3-5-6) shows the schematic of charging part.

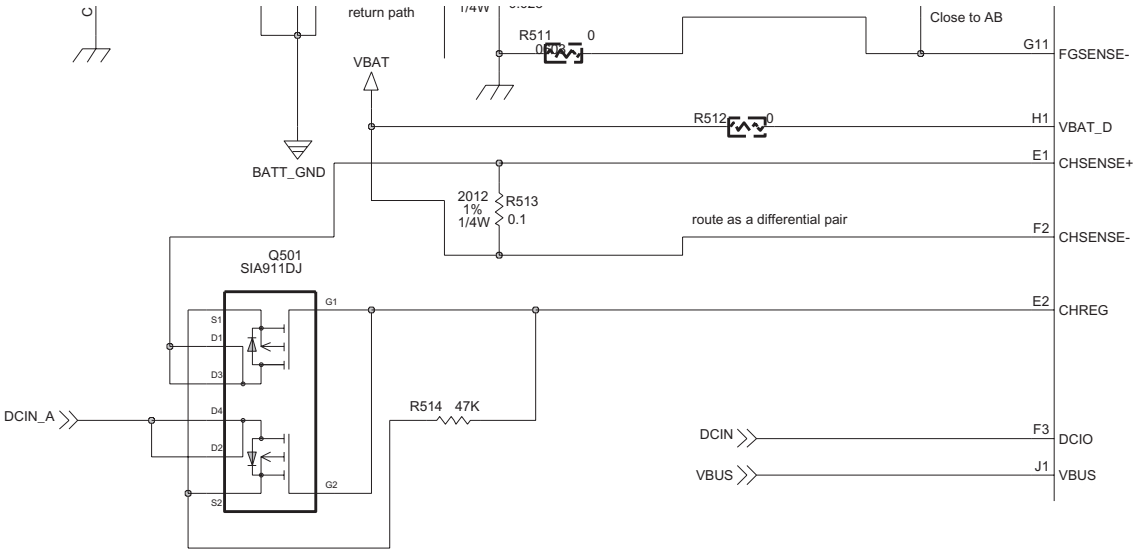
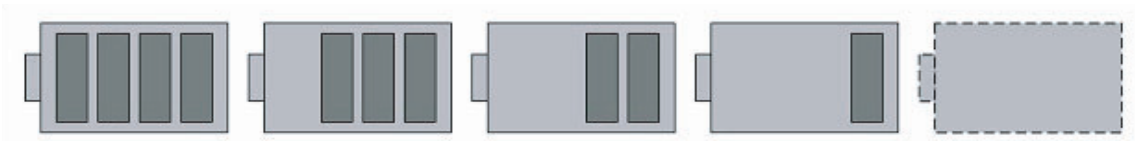


Fig. 3-5-6. Charging Part

When VBAT is below a certain value, 3.2V, a current generator take care of initial charging of the CHSENSE+ node and internal trickle charge signal is active. This part of the charging block is powered on and active when DCIO is asserted. The DCIO signal is asserted when its voltage is above the voltage at VBAT. As soon as generator is turned off and all parts of the charging block are functional and active. Battery block indication as shown in (Fig.3-5-7)



4.2 ~3.88 (V) 100~66 (%)	3.87 ~3.81 (V) 65~44 (%)	3.80 ~3.74 (V) 43~25 (%)	3.73 ~3.59 (V) 24~3 (%)	3.58 ~3.20 (V) 2~0 (%)

Fig. 3-5-7 Battery Block Indication

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Trickle charging

When the VBAT is below a certain value, 3.2V, a current generator take care of internal trickle charge signal is active. The charging current is set to 50mA.

Parameter	Min	Typ	Max	Unit
Trickle current	30	50	60	mA

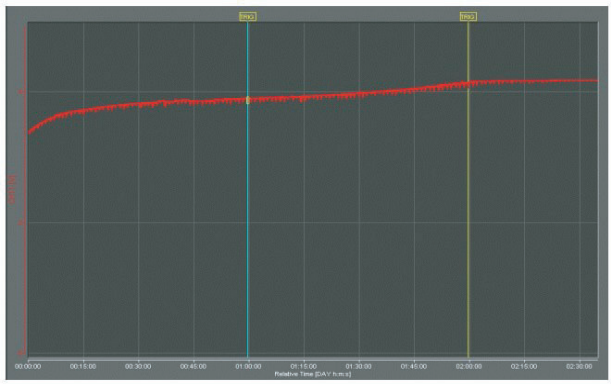
Table. 3-5-4. Trickle charging spec

Normal charging

When the VBAT voltage is within limits or the internal regulators are turned on, the current source for trickle charging is turned off and all parts of the charging block are active. The charging method is 'CCCV'. (Constant Current Constant Voltage)

This charging method is used for Lithium chemistry battery packs. The CCCV method regulates the charge current and the VBAT voltage. This charging method prevents the battery voltage to go above the charge set in the CCCV algorithm. (Fig.3-5-8) shows the charging voltage(a) and charging current change(b).

(a) Charging voltage



(b) Charging current

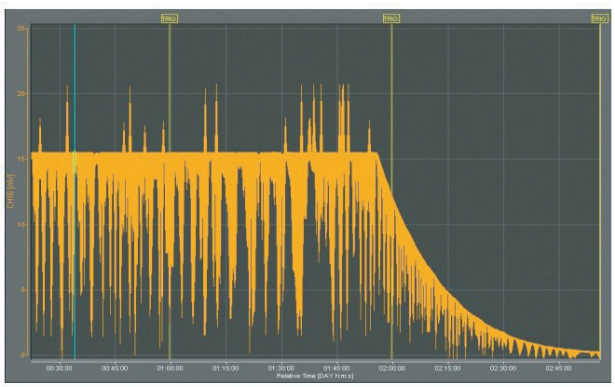


Fig 3-5-5. Battery Temperature Measurement

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• Charging Method : CCCV (Constant Current Constant Voltage)

• Maximum Charging Voltage : 4.2V

• Maximum Charging Current : 700mA

• Nominal Battery Capacity : 860 mAh

• Charger Voltage : 4.8V

• Charging time : Max 3.5h

• Full charge indication current (icon stop current) : 80mA

• Low battery POP UP : Idle - 3.52V, Dedicated - 3.48V

• Low battery alarm interval : Idle - 3 min, Dedicated - 1 min

• Cut-off voltage : WCDMA call - 3.1V, ELSE - 3.2V

Charging of Extended Temperature

When the battery temperature is outside the normal charging specification, the battery voltage, VBAT, is maintained at 3.7V.

• Under 0 °C : Extended temperature

From 0 °C to 45 °C : Normal charging temperature

Over 45 °C : Extended temperature

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3.6 Voltage Regulation

The LDO regulators and the BUCK converter generate a range of programmable voltages, each optimized for its load. When the analog baseband controller boots up or down, internal signals activate or deactivate the LDO regulators and the BUCK converter. In active mode, the LDO regulators and the BUCK converter are activated and deactivated through I2C. The low power regulator is on all the time and has extremely low power consumption with limited output current. It provides power for the 32 kHz oscillator and the real-time clock (RTC).

LDO	Net Name	Output Voltage	Output Current	Usage
ABB_LDO a (VDD_A)	VRADA_2V8	2.8V	150mA	RF3000 and RF3100 analog
ABB_LDO c (VDD_C)	VDDC_2V65	2.65V	200mA	Hall Switch, Audio Amp
ABB_LDO d (VDD_D)	VDDD_1V5	1.5V	200mA	AB3000 CODECs/ ADC/ PLL
ABB_LDO e (VDD_E)	VDIGRAD_1V8	1.8V	200mA	RF3000 and RF3100 digital
	VDDE_1V8	1.8V	200mA	All I/ O Supplies and Memory
ABB_LDO f (VDD_F)	VDDF_2V5	2.5V	30mA	DB3150 Analog
ABB_LDO g (VDD_G)	VDDG_2V75	2.75V	100mA	SD card and LCD
ABB_LDO h (VDD_H)	VDDH_SMB_2V75	2.75V	100mA	3 Axis Accelerator
ABB_LDO k (VDD_K)	VDDK_2V75	2.75V	200mA	Bluetooth
ABB_LDO LP (VDDLP)	VBACKUP	1.5V	6.5mA	RTC module
ABB_BUCK (VBUCK)	VCORE	1.2V	600mA	DB3150 Core
ABB_SIM LDO (SIMVCC)	SIMVCC	2.85V	50mA	SIM card

Table. 3-6-1. LDO and Buck

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3.7 RF Technical Description

3.7.1 General Description

The RF platform of KF750 supports two different communication modes (WCDMA/GSM modes) including four communication bands (WCDMA2100/GSM900/GSM1800/GSM1900). The all the RF blocks can be divided into three main parts, which are a WCDMA part, a GSM, and a RF front-end. Different from other general solutions, the RF front-end of KF750 consists of an antenna switch and an EDGE power amplifier module (PAM).

The simplified block diagram is shown in Figure 3-7-1.

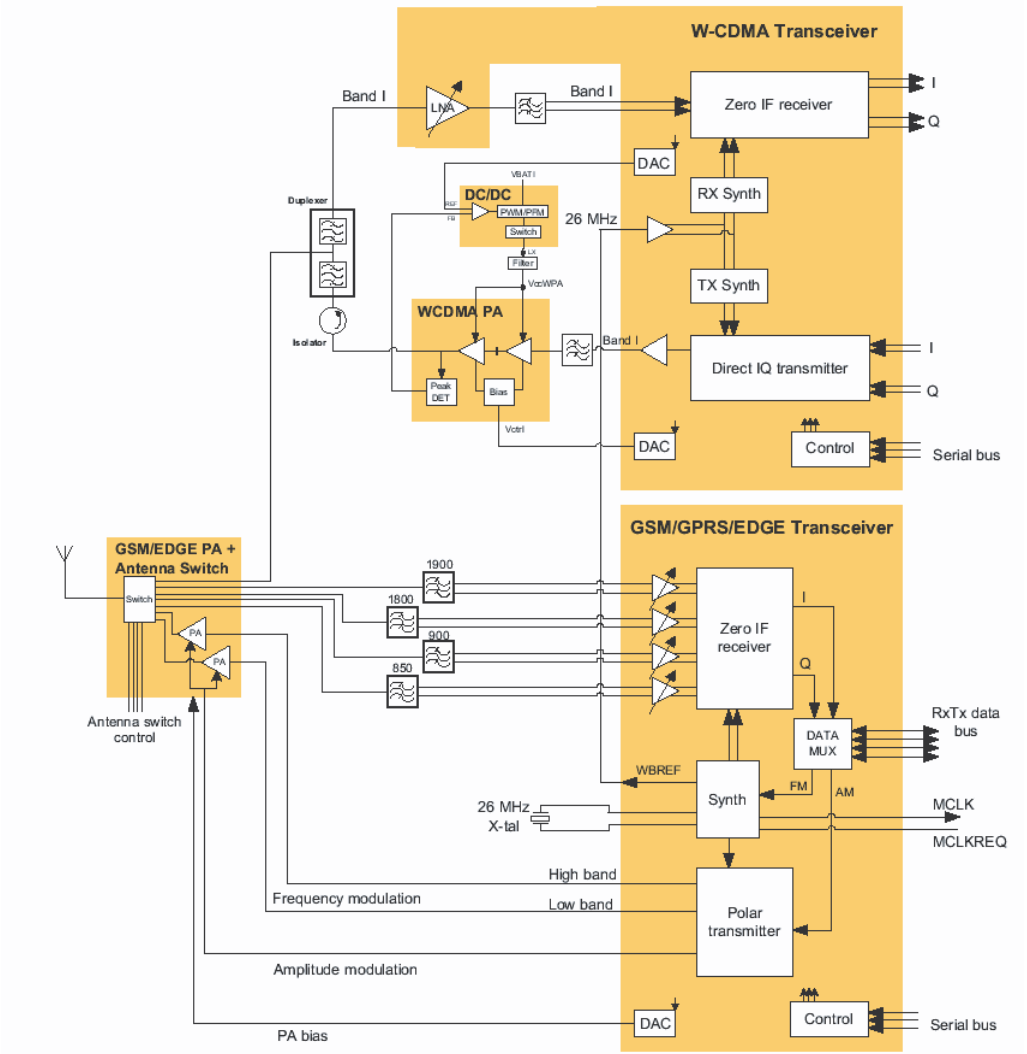

Figure 3-7-1. Block diagram of RF part

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3.7.2 WCDMA Part

The W-CDMA transceiver uses differential analog in-phase and quadrature-phase interfaces, that is an IQ-interface, both in the receiver and transmitter information path. The transceiver has the following general features:

• Power class : Power class 3 (+24dBm) in Band I
• Zero-IF Receiver.No IF filter needed
• Direct IQ modulation transmitter

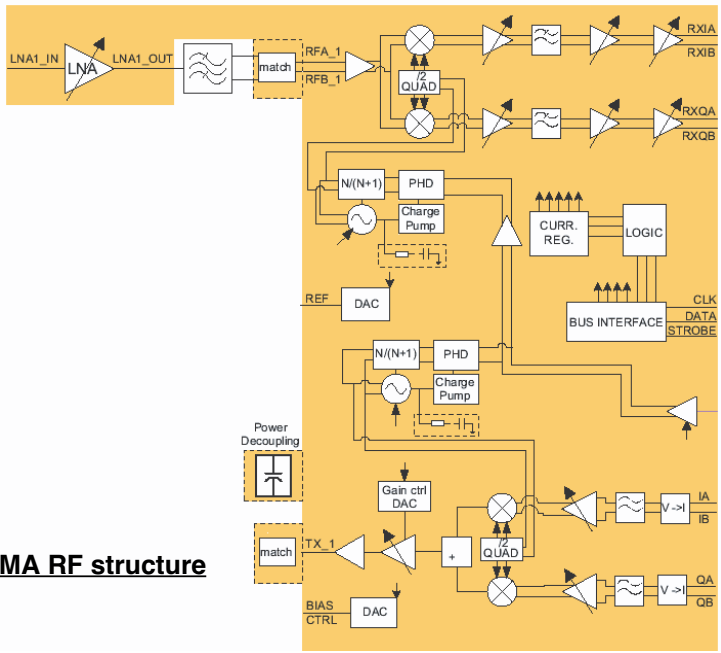

Figure 3-7-2. WCDMA RF structure

A. Transmitter Part

The W-CDMA transmitter architecture is an on frequency linear direct up-conversion IQ-modulator.

The TX IQ modulator has differential voltage I and Q inputs. It converts input signals to RF output frequency and is designed to achieve LO and image suppression. The in-phase and quadraturephase reconstruction filters are fully integrated and a programmable gain amplifier implements the gain control. The transmit output stage provides at least +5 dBm at maximum power control at the single-ended 50 Ω output. Gain is set through the 3-wire bus. An external SAW filter between the WCDMA circuit and the power amplifier is used to improve noise performance. Two 10-bit DACs are used to control the DC/DC converter and the PA gain. After the power amplifier, the signal is sent through an isolator and through the duplex filter, which directs the transmit signal to the antenna connector through the antenna switch. The supply voltage and bias of the power amplifier are adapted depending on the output power to achieve high efficiency at every transmitter power level. A high efficiency DC/DC converter regulates the supply voltage and the bias operation point is controlled by a D/A-converter in the W-CDMA radio circuit.

These DACs are controlled through the 3-wire-bus

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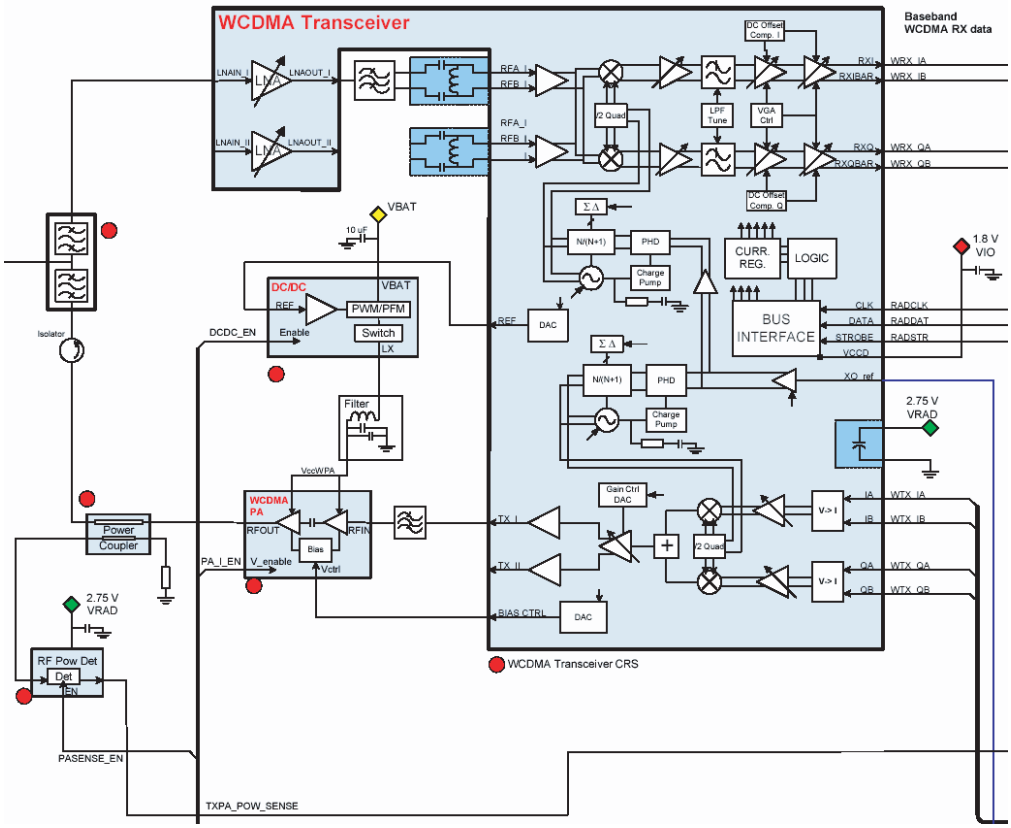

Figure 3-7-3. WCDMA Transceiver Architecture

B. Receiver Part

The W-CDMA receiver architecture is a direct down-conversion Zero Intermediate Frequency (ZIF) receiver with integrated low-pass channel filter, i.e. the front-end receiver converts the aerial RF signal from W-CMDA band I down to a ZIF. The first stage consists of one single-ended low noise amplifier (LNA) with a 16 dB gain step. This LNA is followed through an external filter by an IQ down-mixer which consists of a mixer in parallel driven by quadrature out-of-phase LO signals. The In phase (I) and Quadrature phase (Q) ZIF signal are then low pass filtered to provide protection from high frequency offset interferer fed into the channel filter.

The front-end zero IF I and Q outputs are applied to the integrated low-pass channel filter with a provision for 4 x 8 dB gain steps in front of the filter. The filter is a self-calibrated 6 pole, 2 zero filter with a cut-off frequency around 2.15 MHz and a second order group delay compensation (2 poles, 2 zeroes). Once filtered, the zero IF I and Q signals are further amplified with provision of 31 x 1 dB steps and DC offset compensation.

The zero IF output buffer provides close rail-to-rail outputs signal.

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C. Synthesizer

The RX and TX RF VCOs are fully integrated and self-calibrated on manufacturing tolerances.

They have 16 different frequency ranges that are selected internally depending on the frequency programming. The calibration is done on each low to high logical transition of the SYNON bit in the control register or on each change of the integer divider ratio of the RF fractional N synthesizer.

A high-performance RF fractional-N synthesizer PLL is included on-chip which enables the frequency of the RF VCO to be synthesized. The frequency is set through the 3-wire serial programming bus. The PLL is based on Sigma-Delta (∑.) fractional-N synthesis that enables the required channel frequency, including Automatic Frequency Control (AFC) from a free running external 26 MHz reference frequency. Very low close-in-phase noise is achieved. This allows widening of the PLL loop bandwidth and shorter settling time. The programmable main dividers are controlled by a second order ∑-modulus controller. They divide the RF VCO signals down to frequencies of 26 MHz (12 Hz step programmability). Their phase is then compared in a digital Phase/Frequency Detector (PFD) to the 26 MHz reference clock signal.

The phase error information is fed back to the RF VCO through the charge pump circuit that .sources. into or .sinks. current from the loop filter capacitor, thus changing the VCO frequency such that the loop finally gets phase-locked.

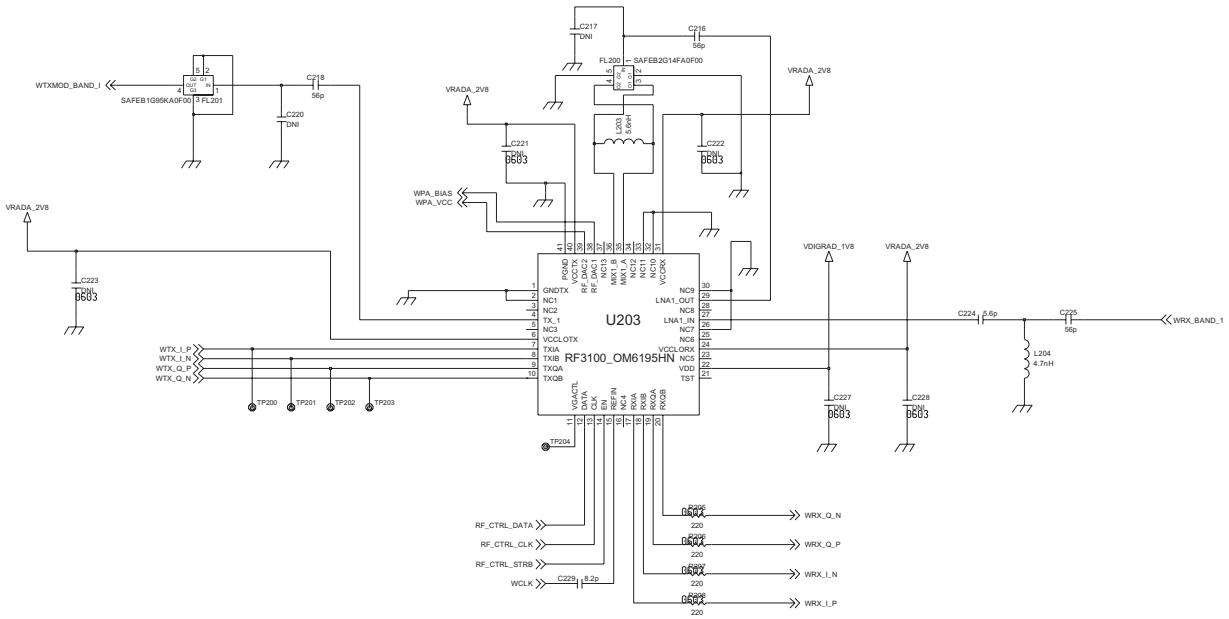

Figure 3-7-4. WCDMA Transceiver schematic

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D. Power Amplifier Module

The SKY77174 Power Amplifier module is a fully matched 10-pad surface mount module developed for Wideband Code Division Multiple Access (WCDMA) applications. This small and efficient power amplifier packs full coverage of the 1920-1980 MHz bandwidth into a single compact package.

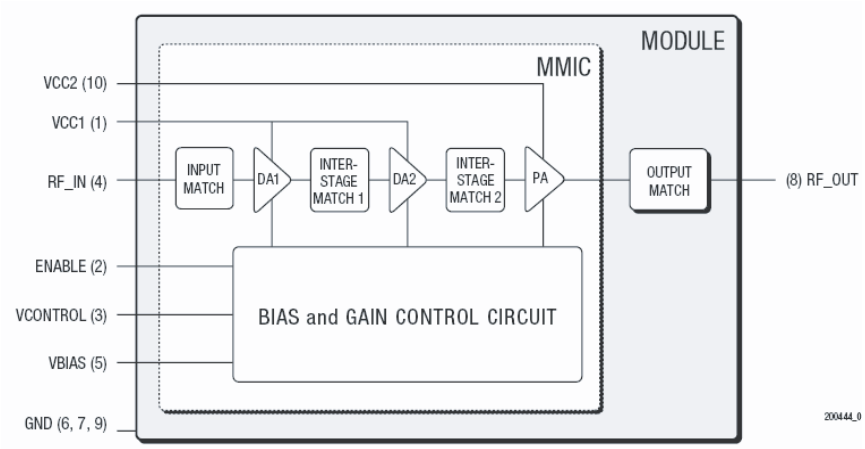

Figure 3-7-5. SKY77174 Functional Block Diagram

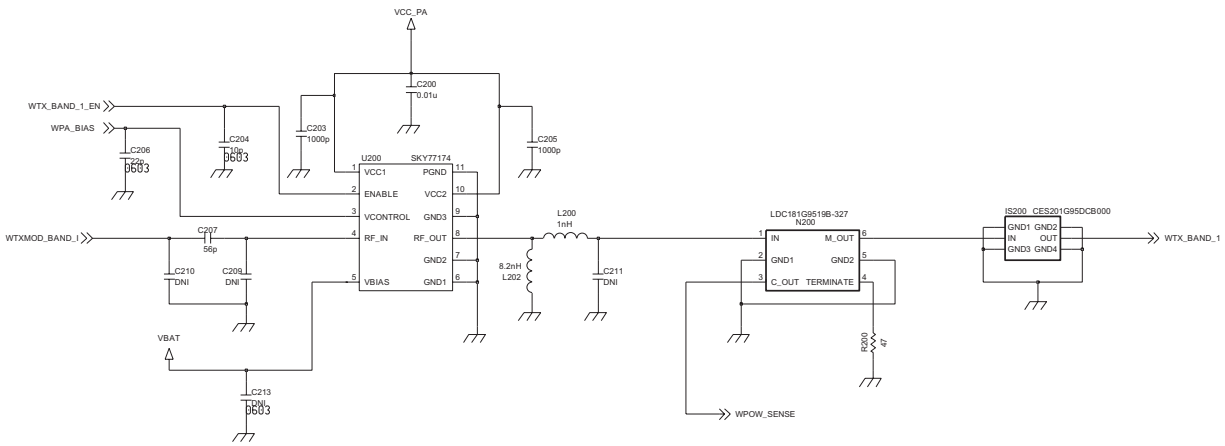

Figure 3-7-6. WCDMA PAM schematic

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3.7.3 EDGE/GPRS/GSM RF block

The EDGE/GPRS/GSM transceiver use a digital interface that is shared between receive and transmit data. The receive interface is based on I and Q data and the transmitter interface is based on envelop and frequency data. The quad band EDGE/GSM/GPRS transceiver has the following general features:

Power class

GMSK low bands: Class 4 (33 dBm)

GMSK high bands: Class 1 (30 dBm)

8PSK low bands: Class E2 (27 dBm)

8PSK high bands: Class E2 (26 dBm)

Multi slot class 12 (4+4=5)

Dual Transfer Mode (DTM) class 9 (3+2=5)

Zero-IF receiver

• Polar modulation transmitter

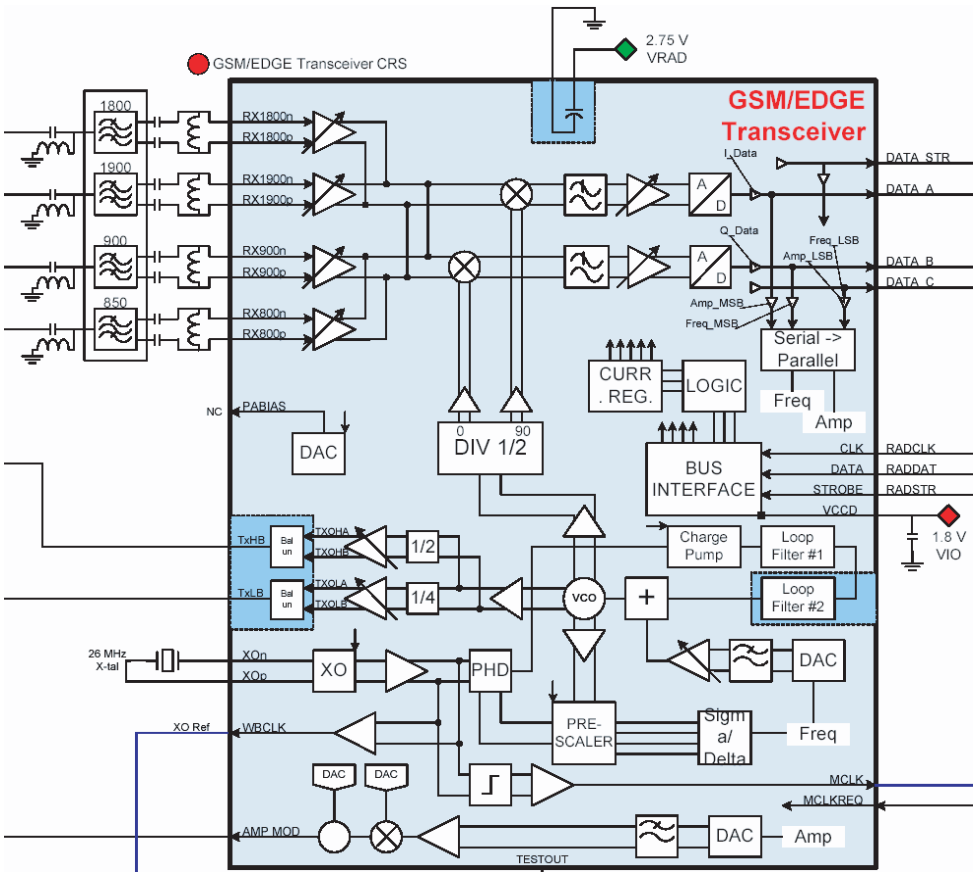

Figure 3-7-7. GSM Transceiver Architecture

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A. Transmitter Part

Polar modulation transmitter architecture based on the direct phase/frequency modulation/synthesizer architecture is implemented for GSM, GPRS and EDGE. This architecture has the capability of generating both the GSM/GPRS constant envelope GMSK modulation and the linear EDGE 8-PSK modulation in a very cost efficient way. The motivation for a polar modulation transmitter architecture compared to traditionally linear architectures is to reduce the output noise (thus eliminating the need for off-chip filters) reduce the power consumption by utilizing non-linear switching analog signal processing blocks, and to eliminate the need for an RF isolator.

The transmitter block consists of several sub-blocks: A separate block is used to convert the digital bit streams from the baseband into parallel words to be used in the DACs and the Sigma Delta modulator. The combined DAC and LP-filter is used to convert the digital words of the digital block into analog signals. The second FM-path is used to add the high frequency part of the FM to the VCO. It also includes an auto-tuning block that compensates VCO gain variations.

In the Sigma Delta modulator block, the phase/frequency modulator in this polar modulation architecture is a sigma-delta controlled fractional-N frequency synthesizer with an additional frequency insertion point after the loop filter at the input of the VCO. In addition, The TX-buffer is used to drive the PA with the correct power level. A divide by 2 or 4 block is used to generate the correct output frequency from the 4 GHz VCO. The phase locked loop has two information inputs:

the divider ratio in the feedback path and a direct path to the VCO. The phase locked loop generates the radio frequency carrier including the phase modulation information at the desired channel frequency.

B. Receiver part

Direct down-conversion zero-IF receiver architecture is used for the four EDGE/GSM/GPRS frequency bands 800, 900, 1800 and 1900 MHz. The complete receiver with four Low Noise Amplifiers (LNAs), one for each supported band, is integrated on chip. After the down-conversion, the in-phase and quadrature-phase components are low pass filtered with two anti-alias filters before the signals are fed to the integrated high dynamic range sigma-delta A/D-converters. The only required external components are the band selectivity SAW filters in front of the LNAs. One filter is required per supported frequency band. The digital output signals are sent over a serial interface to the digital base-band circuit for further processing and detection.

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C. Synthesizer

The synthesizer contains all the frequency generating blocks in the RF3000 circuit: The reference 26 MHz frequency generation is made in a external crystal oscillator, which is fully integrated in the circuit (except for the crystal). The digital bus controls the center frequency of the XO. All RFfrequencies are generated in a single 4GHz VCO, subsequently divided by 2 or 4 to arrive at the final frequency. To cover the required frequency range, the integrated Voltage Controlled Oscillator (VCO) operates at twice the frequency for band 1800/1900, and at four times the desired frequency for band 800/900.

The RF-VCO is locked to the XO in a fractional-N PLL consisting of a prescaler, a phase-frequency detector, a charge-pump, a sigma-delta modulator and a fully integrated loop filter. Automatic trimming of the VCO center frequency and the RC constant makes sure that the variation of the PLL dynamics is sufficiently low.

The XO also has an external reference mode where a differential 26 MHz clock reference signal can be supplied externally at the XoP and XoN pins. A single-ended clock reference buffer MCLK sources a harmonically controlled square wave reference signal to be used in the baseband. An additional single-ended clock is generated for use in the W-CDMA circuit. This output is activated by a control signal in the digital bus.

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3.7.4 Front-End Module (FEM)

A single antenna is used for all four bands. The antenna switch and the EDGE/GSM/GPRS power amplifiers are integrated to a single circuit containing:

- Antenna Switch with support for W-CDMA band 1
- Power amplifiers for high and low band EDGE/GSM/GPRS
- AM modulator/control circuit
- Lowpass transmitter filtering

The antenna switch block connects the proper block in the radio system to the antenna connection. In GSM/GRPS/EDGE systems, transmit and receive operations are divided in time, and the switch connects the proper block in accordance with the mode of operation (that is, transmit or receive; one at a time in the GSM, DCS, and PCS bands).

In W-CDMA systems, the transmitter and the receiver operate simultaneously (that is, full duplex).

The switch is used only for selecting the W-CDMA mode of operation . the split between transmit and receive frequencies is handled by the W-CDMA duplexer.

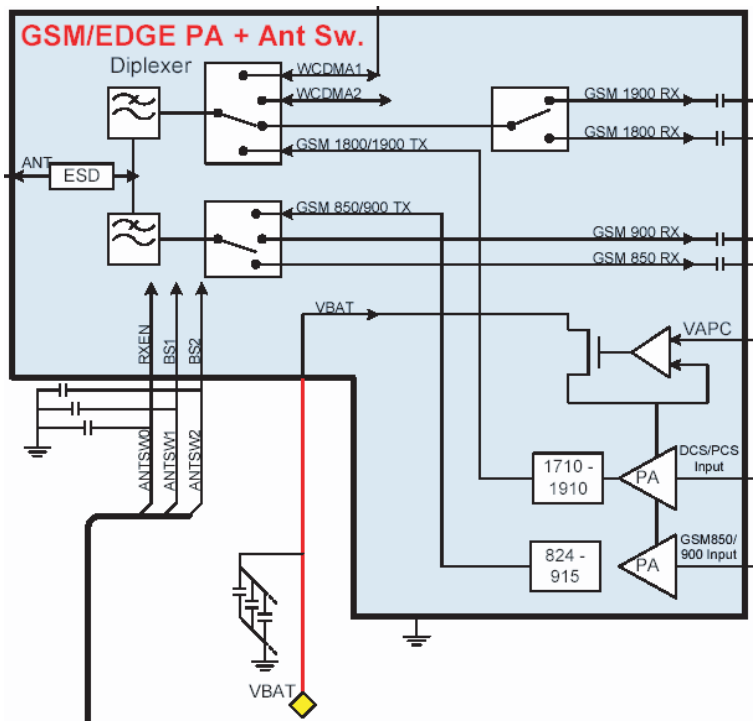

Figure 3-7-8. Front-End Module

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A. Front End Part

SKY77519 TX-RX Front End Module (FEM) offers a complete transmit VCO-to-Antenna and Antenna-to-receive SAW filter solution in a low profile (1.2 mm), compact form factor for handsets comprising GSM850/900, DCS1800, and PCS1900 operation. The FEM also supports Class 12 General Packet Radio Service (GPRS) multi-slot operation, Polar EDGE modulation, and provides single UMTS band (band 1 or band 2) antenna switch-through via a dedicated UMTS port.

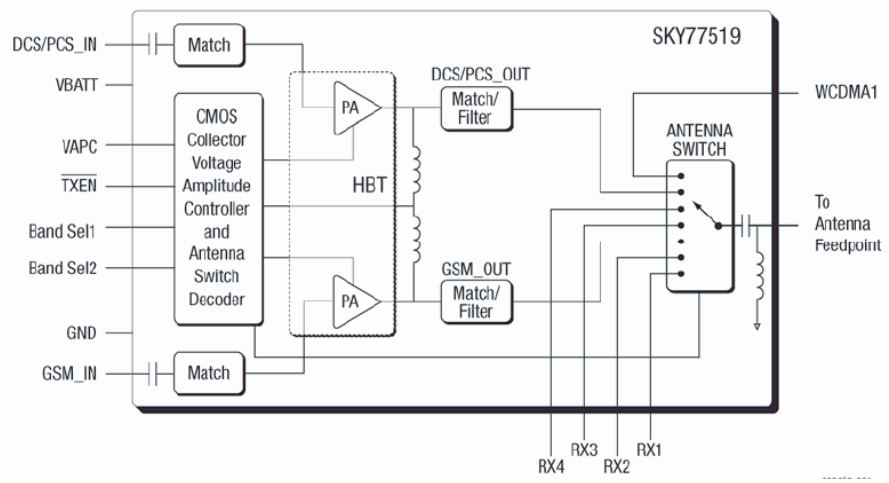

Figure 3-7-9. SKY77519 Functional Block Diagram

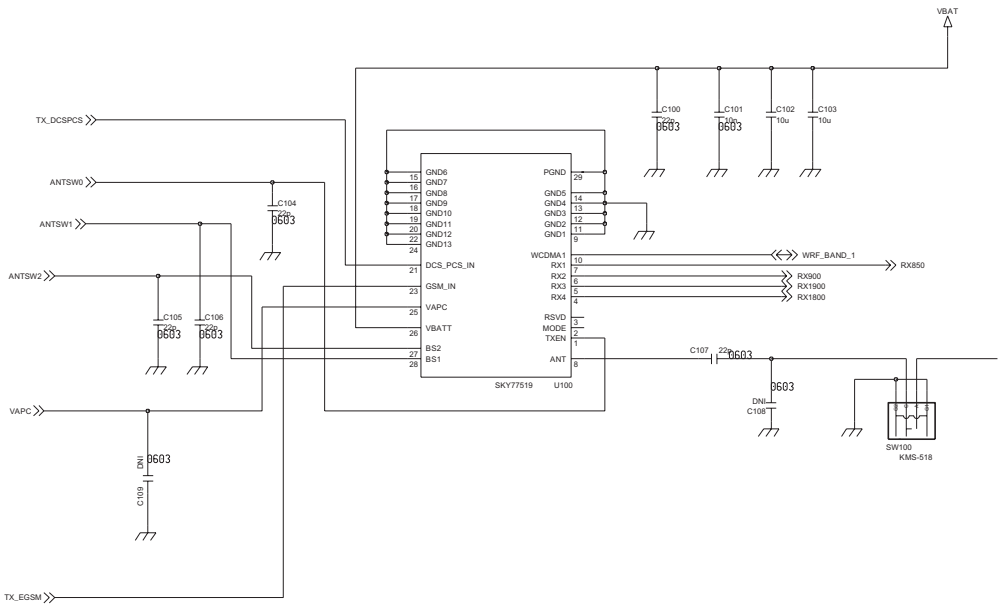

Figure 3-7-10. Front End part schematic

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3.7.5 Control Flow

The access side of the digital baseband controller controls the overall radio system. In both EDGE/GSM/GPRS and W-CDMA air interface mode, the digital baseband controller controls the radio system through a three-wire serial bus.

The digital baseband controller also manages PA band control and the antenna switch mechanism in the front end module. The 26 MHz VCXO clock residing in the GSM/EDGE transceiver is turned on only when required, the digital baseband controller initiates this.

The EDGE/GSM/GPRS RF system requires control, which is temperature dependent. The temperature within the RF system is estimated by a voltage measurement performed by the analog baseband controller. The control flow for the RF system is shown in Figure 3-7-11.

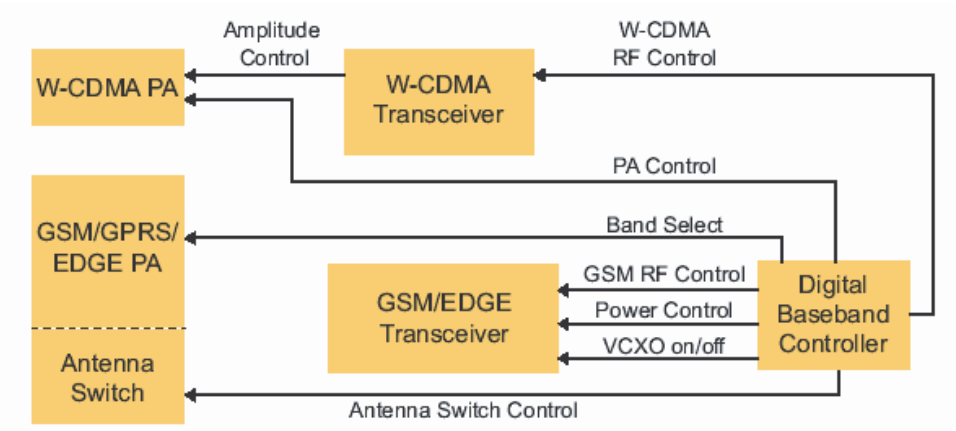

Figure 3-7-11. RF Control Flow

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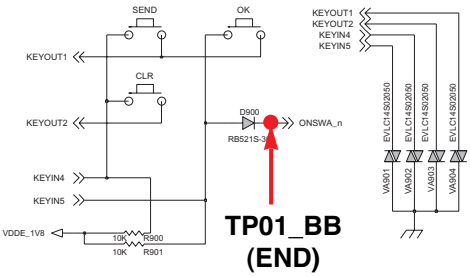
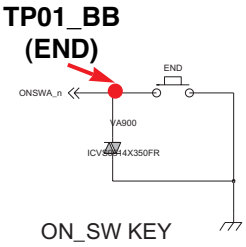
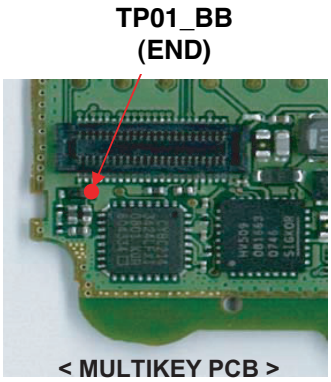
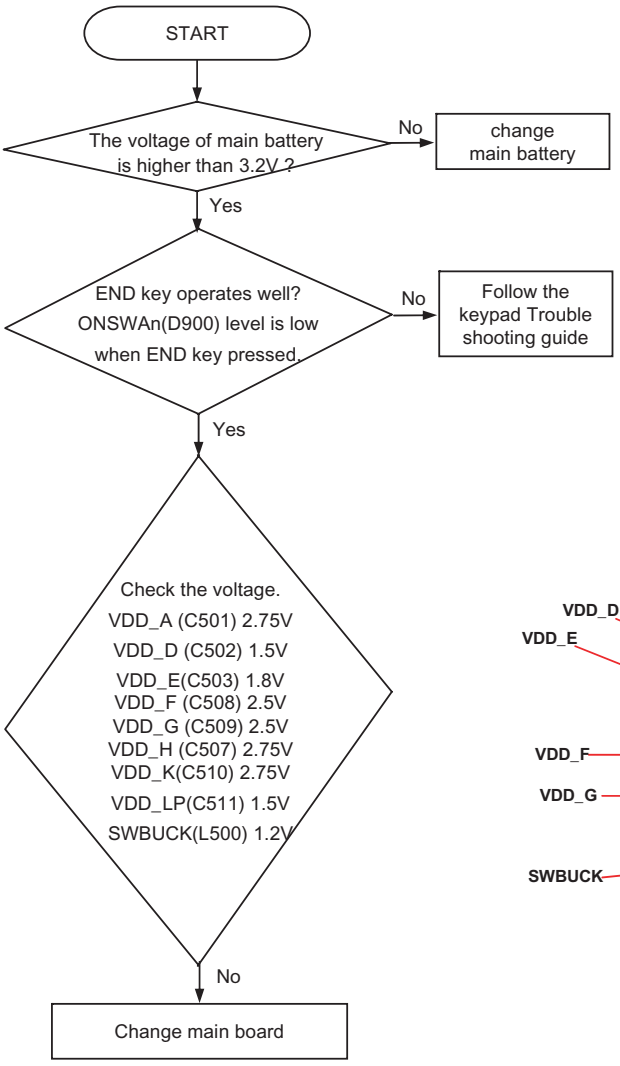
4. TROUBLE SHOOTING

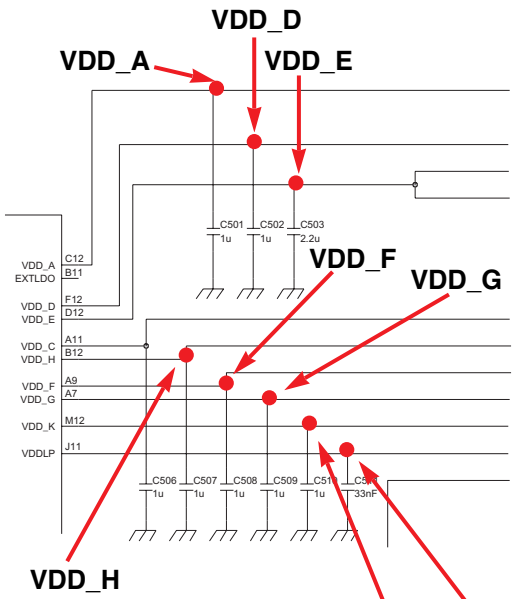
4.1 Power ON Trouble

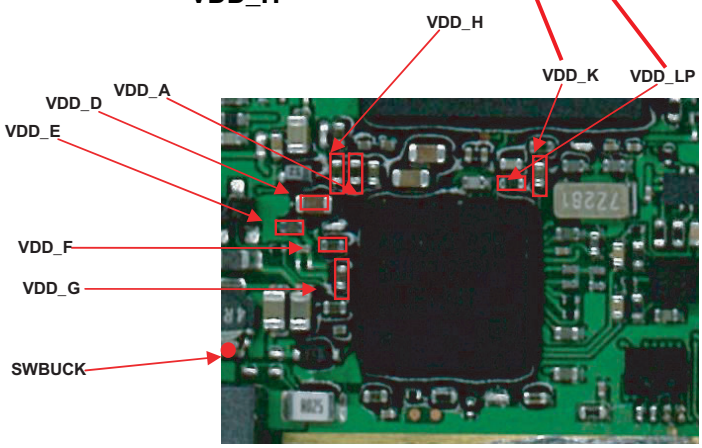












< MAIN PCB >

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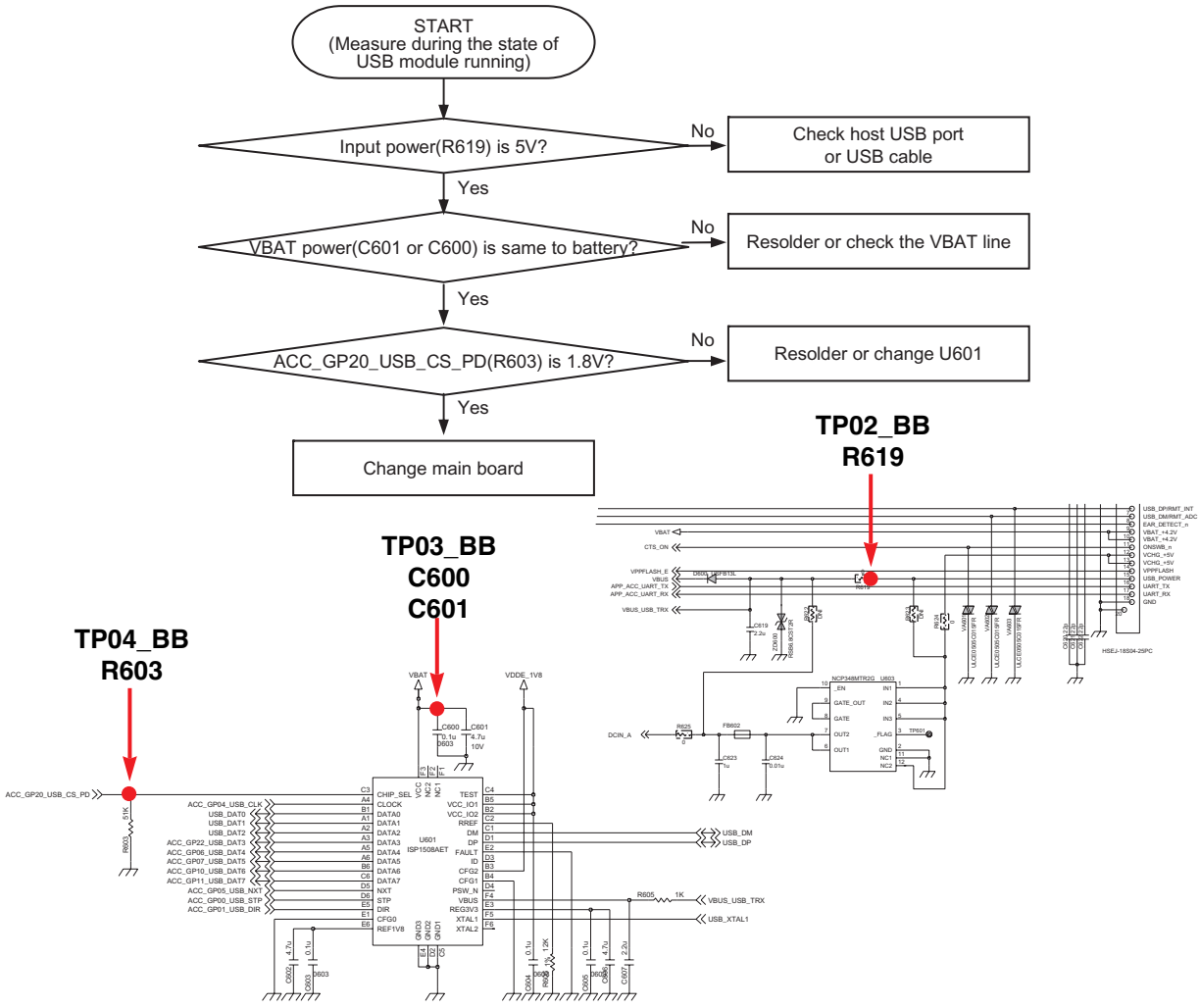
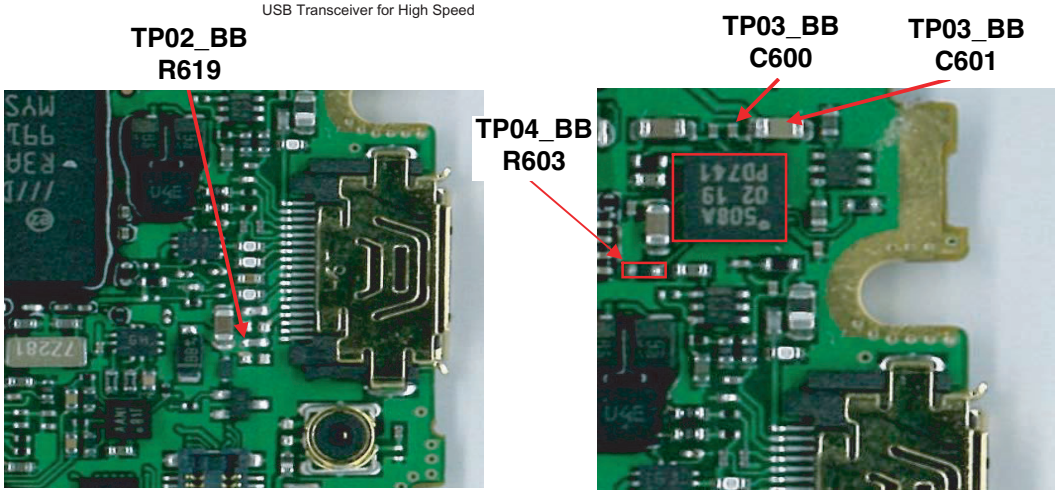
4.2 USB Trouble





< Main Board ñ Bottom side >

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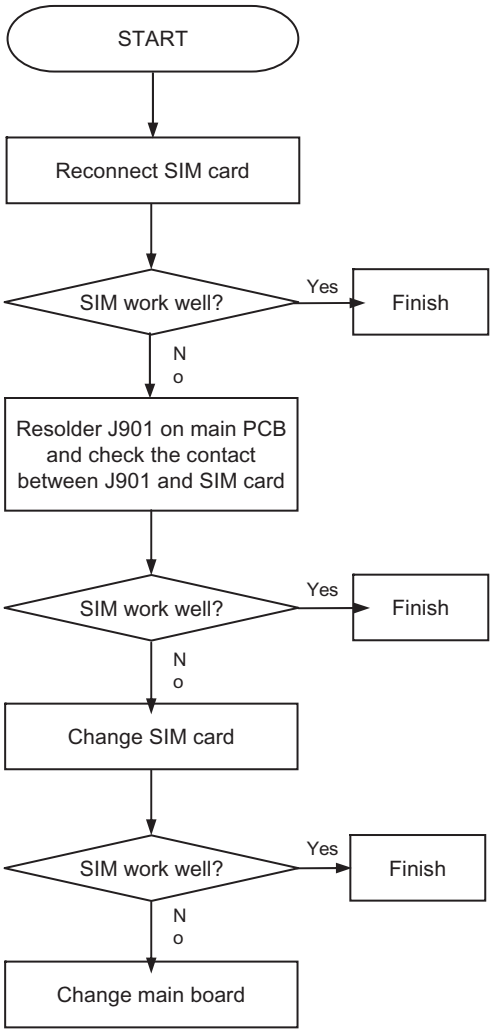
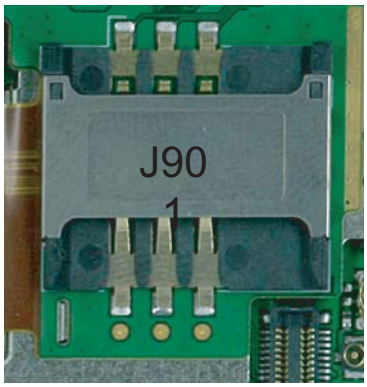
4.3 SIM Detect Trouble

· SIM control path

- Asta generates SIM interface signals(1.8V level) to AB3000.
- AB3000 converts SIM interface signals to 3V.





< SOCKET PCB - SIM Connector >

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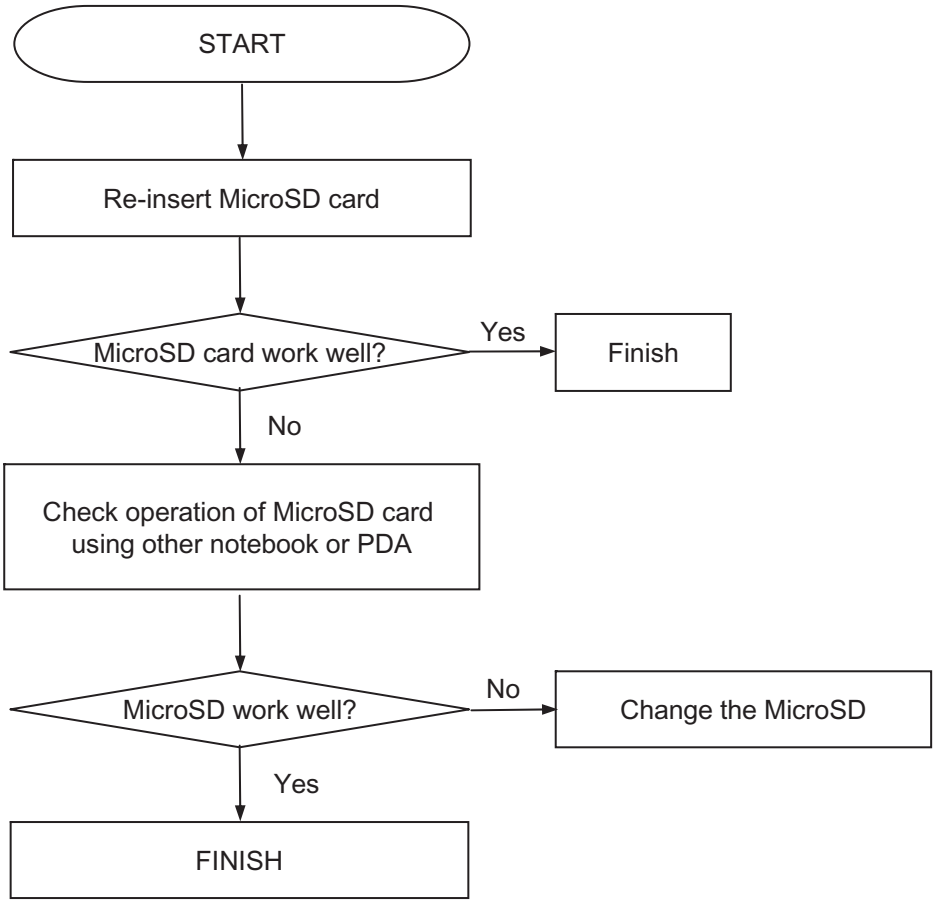
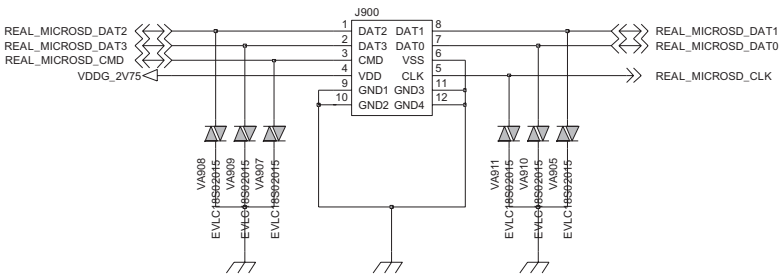
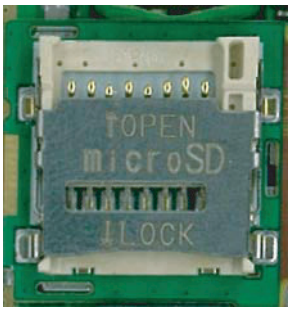
4.4 MicroSD card Trouble

Baseband chipset use polling method to detect the microSD Card.



MICRO SD





< Socket PCB side microSD Socket >

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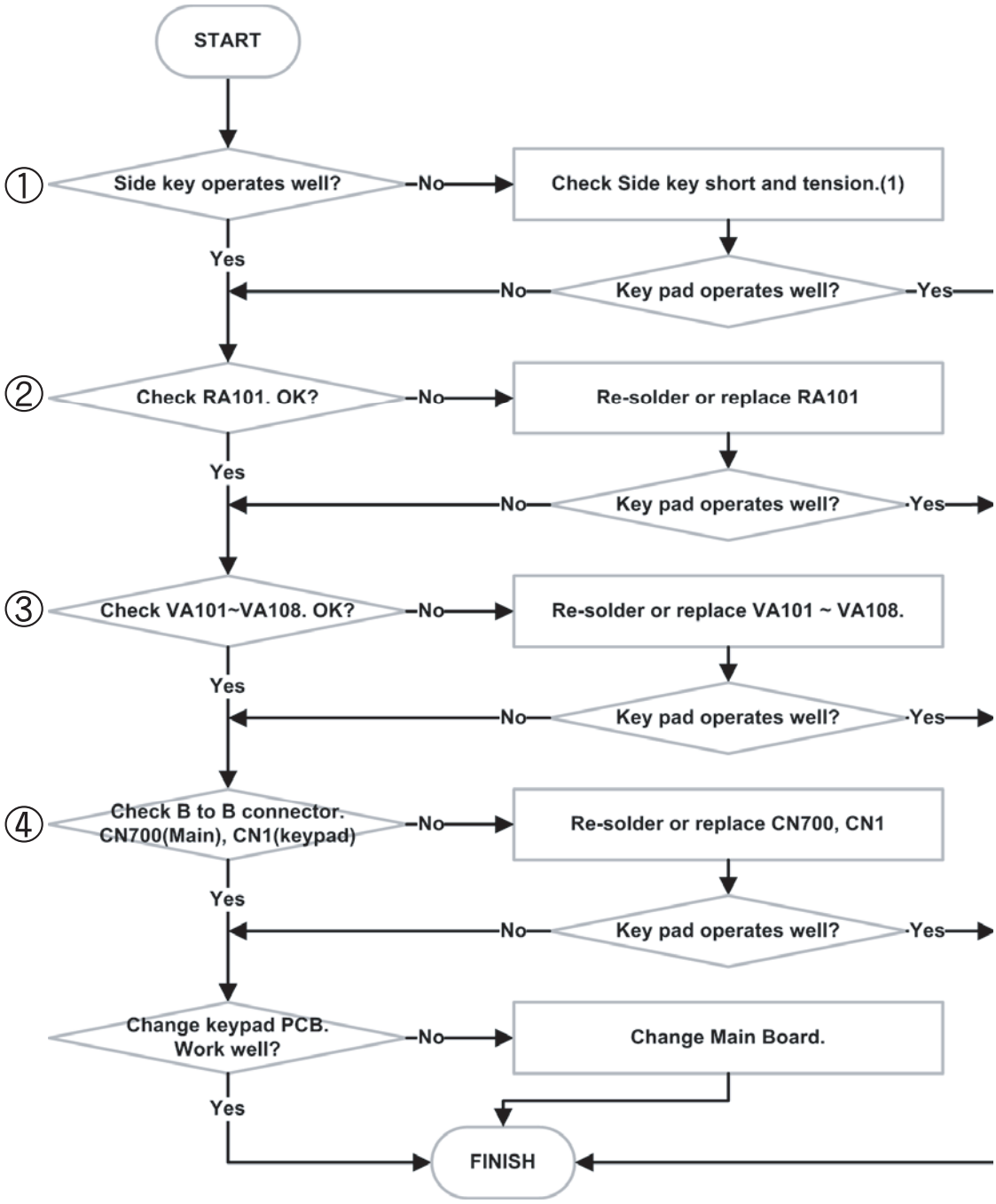
4.5 Keypad, Touch Button and Touch Screen Trouble

4.5.1 Keypad Trouble



(1) If one of the side key is short with other signal or pressed, some key is not work.

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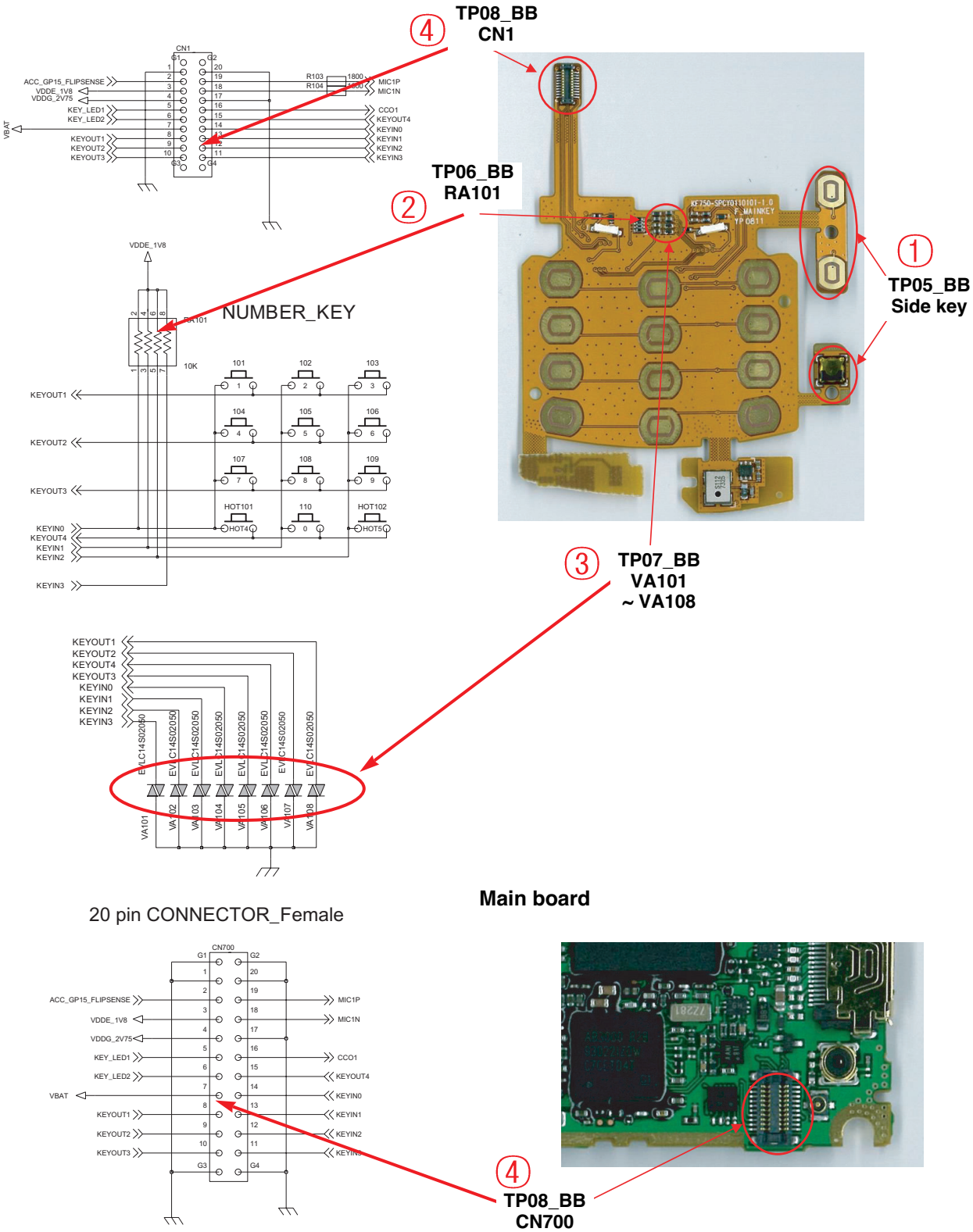
Main key PCB



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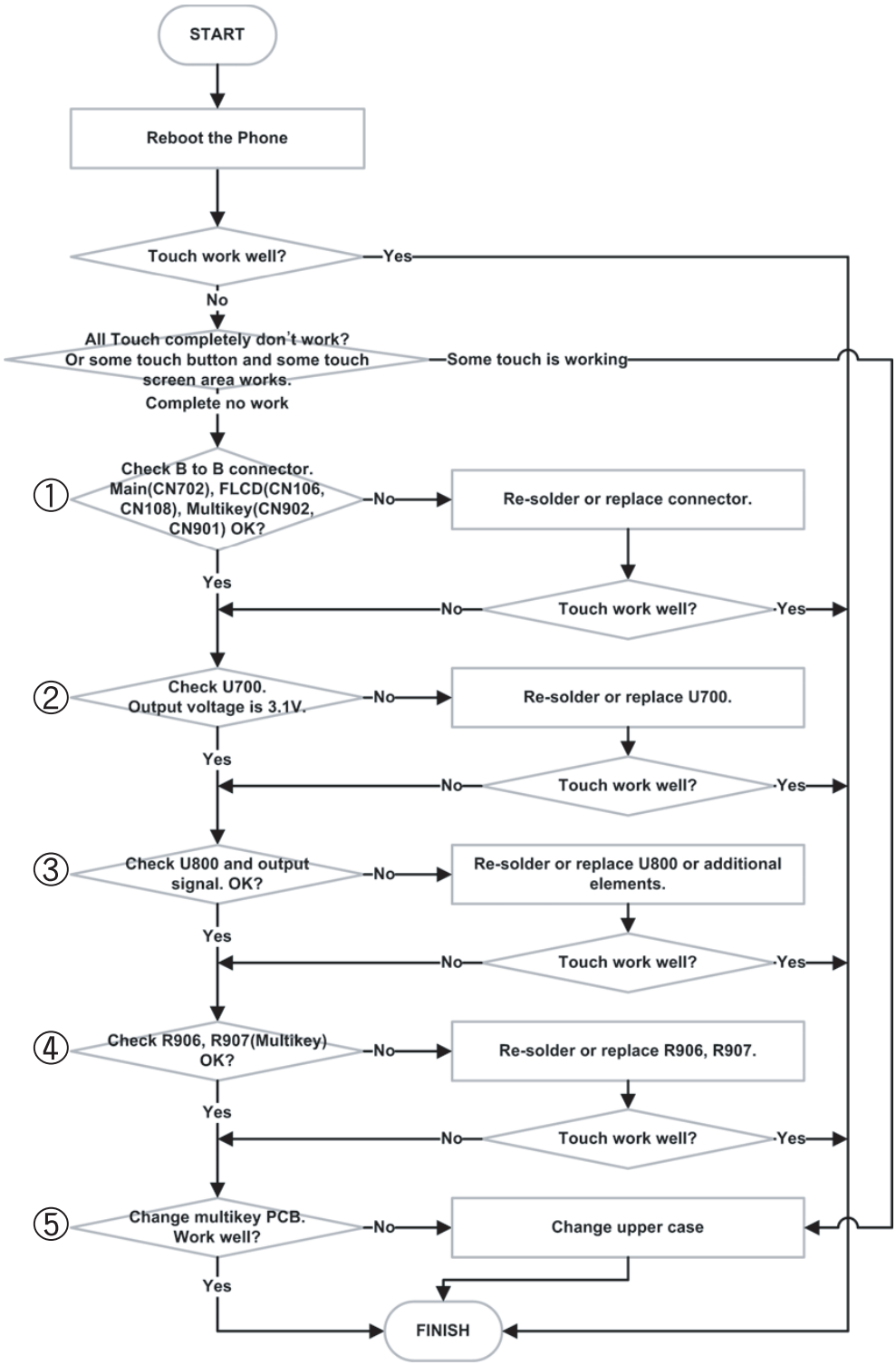
4.5.2 Touch button and Touch screen Trouble



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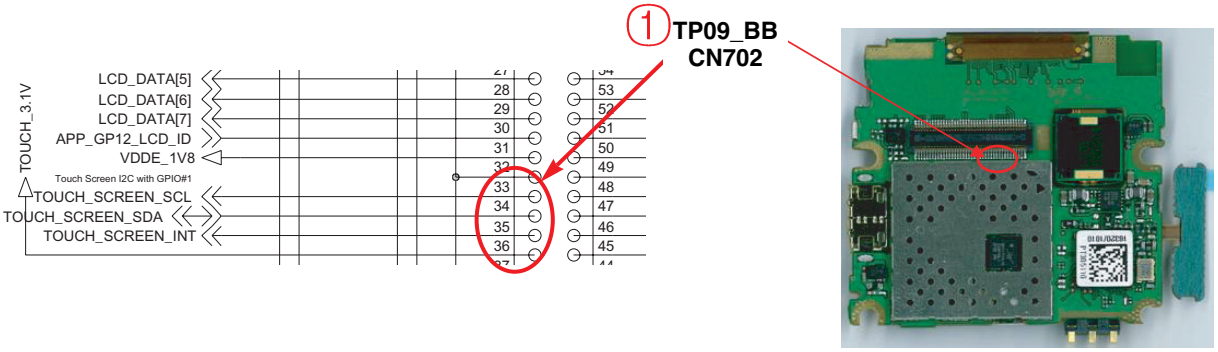
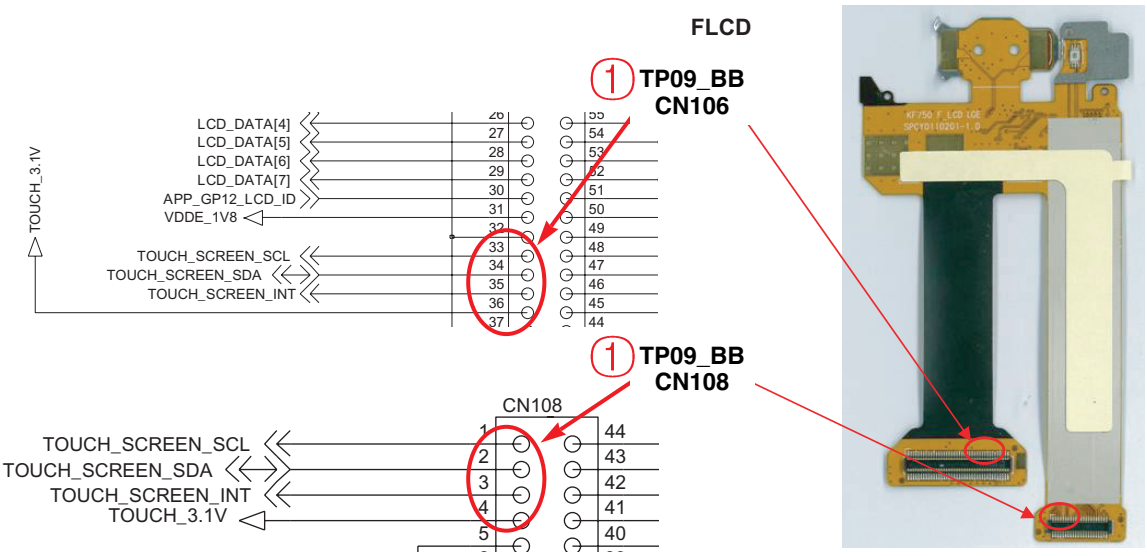
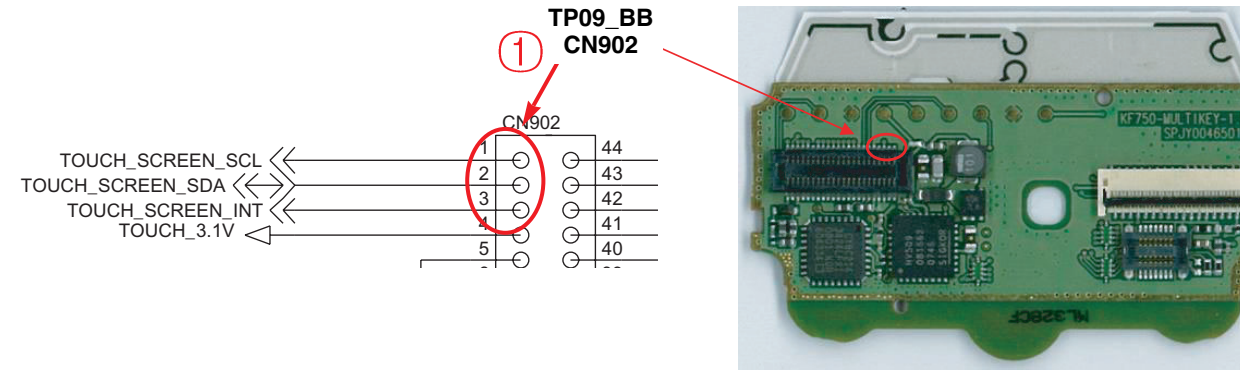
Main Board



FLCD



Multikey



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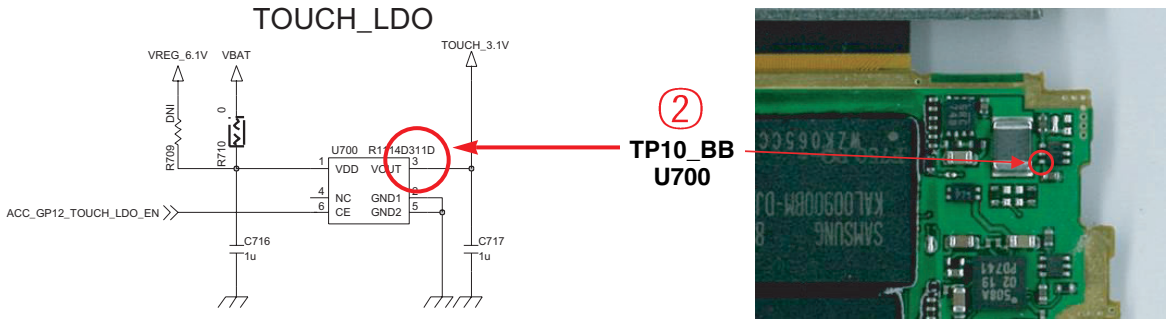
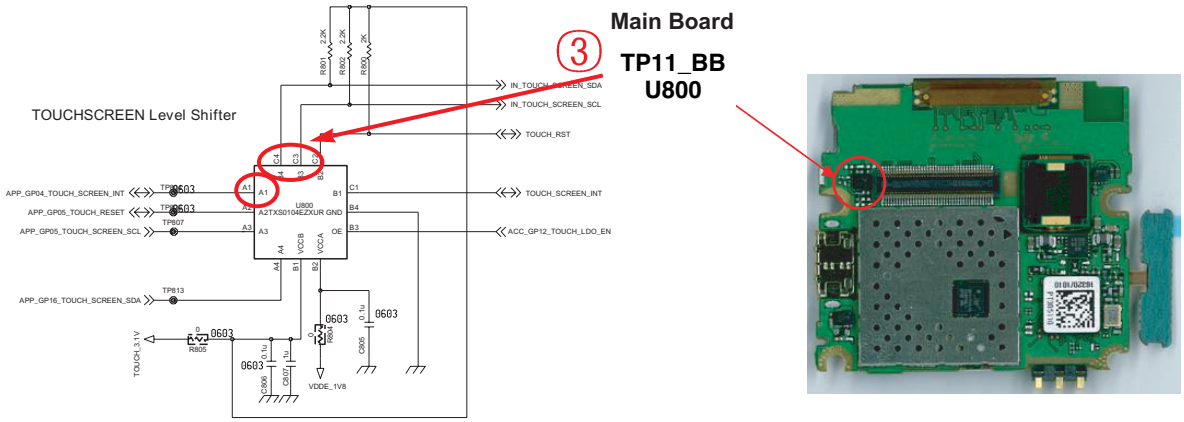
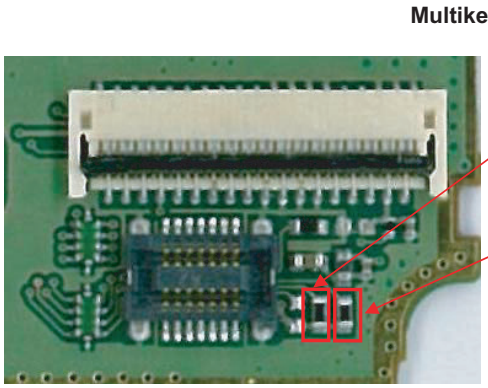
4. TROUBLE SHOOTING

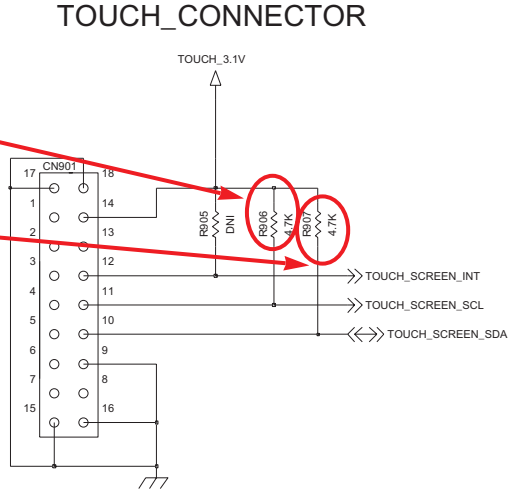


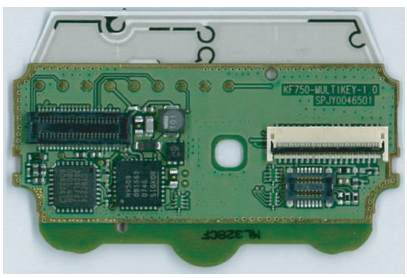
The output must be 3.1V DC.



The output must be 3.1V DATA or Clock signal







⑤ **Change Multikey PCB**

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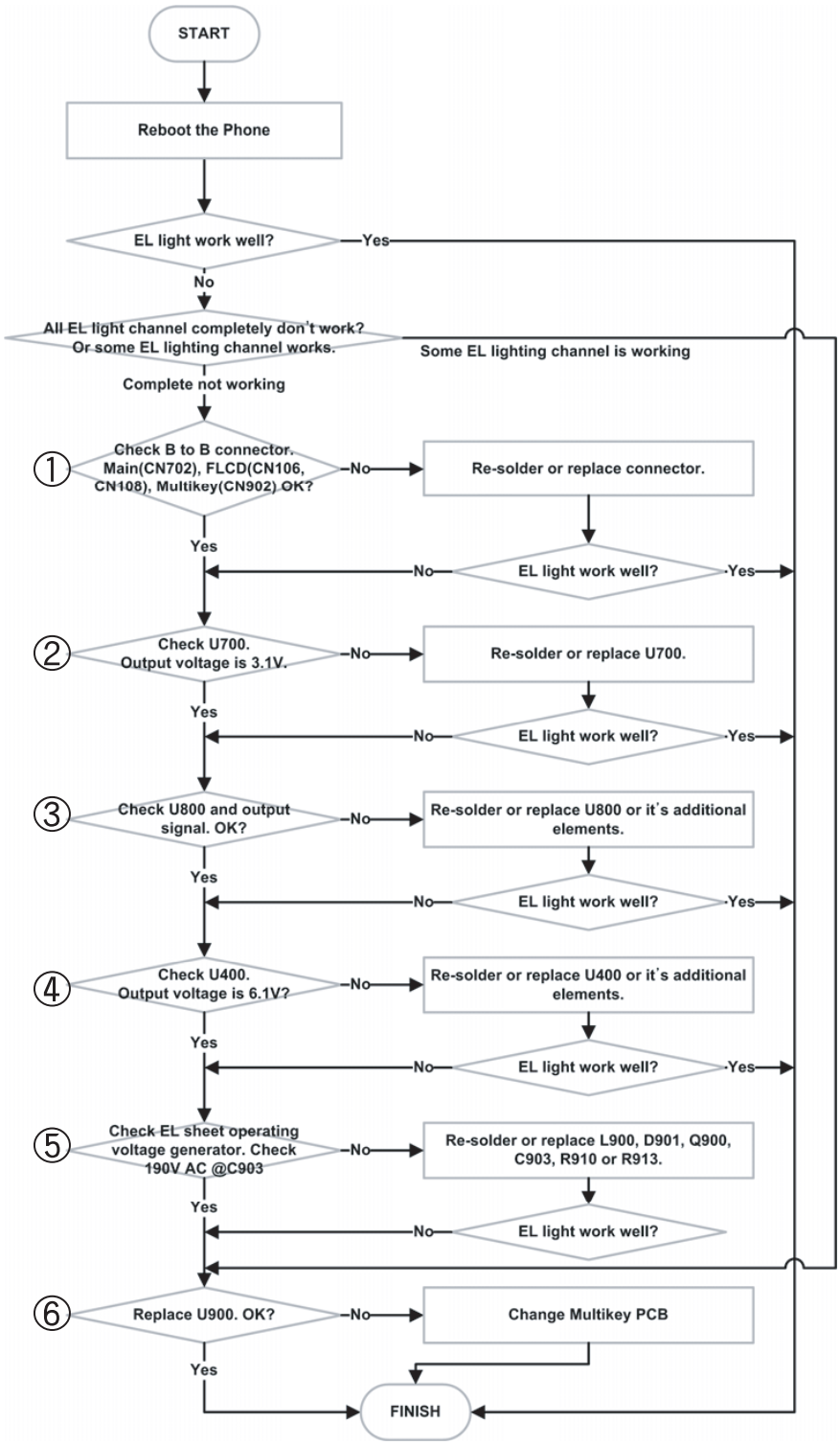
4.6 Multi EL lighting Trouble



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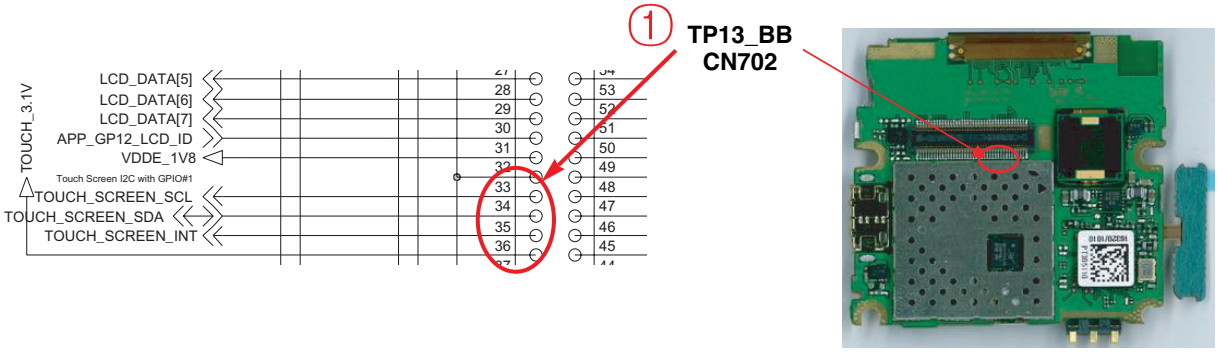
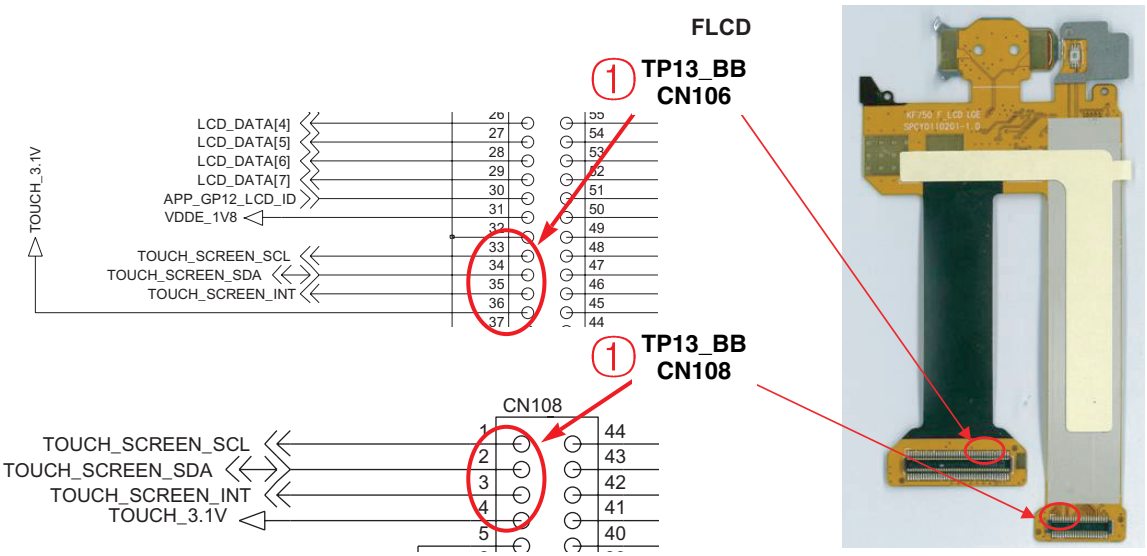
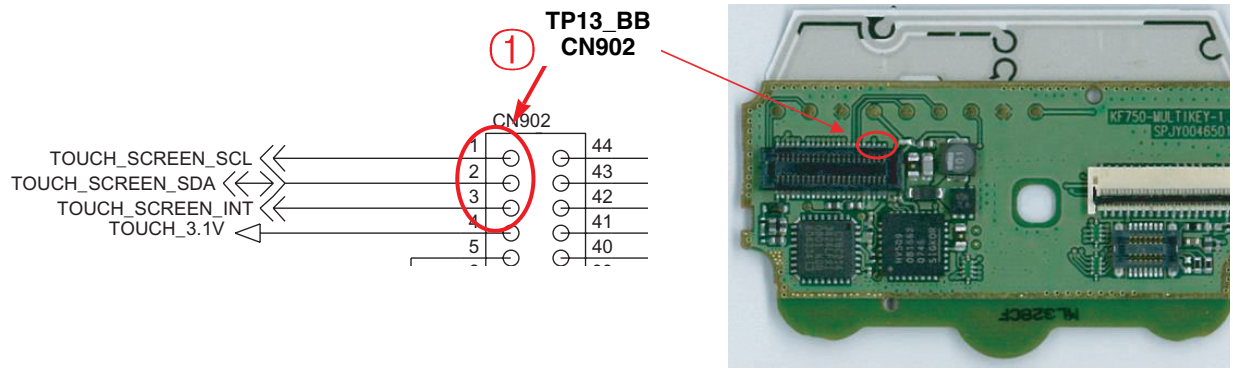
Main Board



FLCD



Multikey



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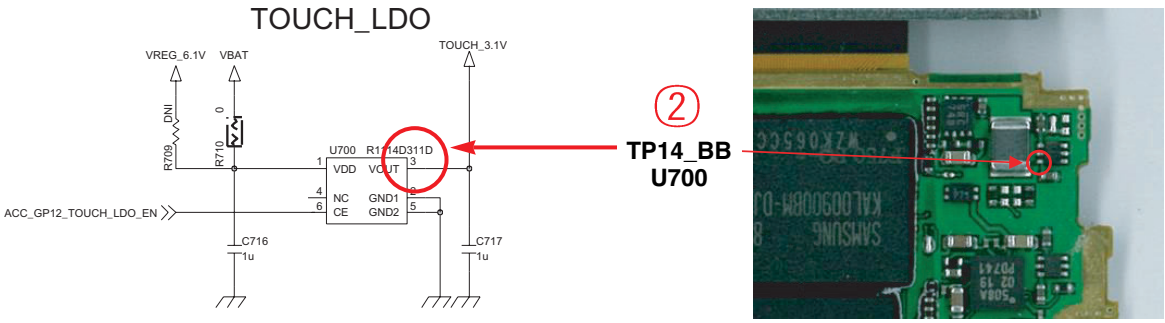
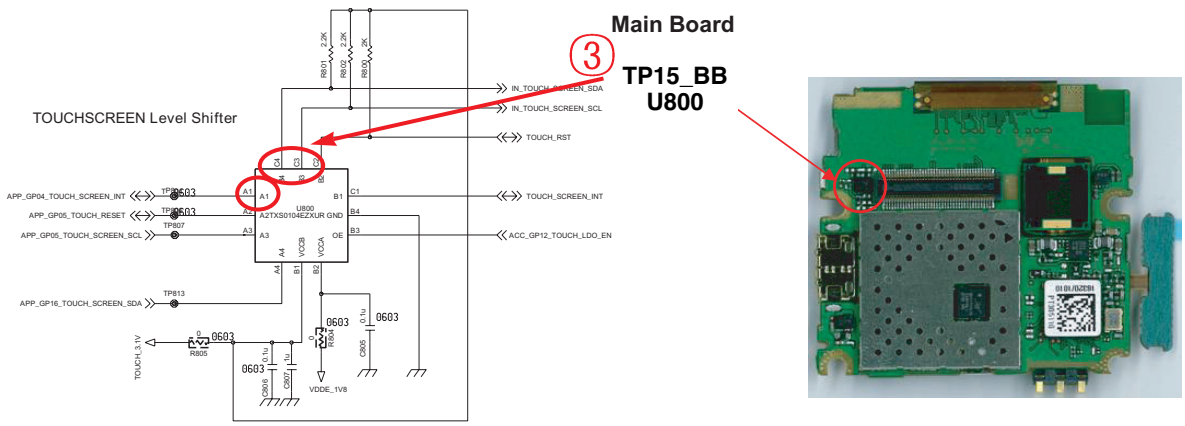
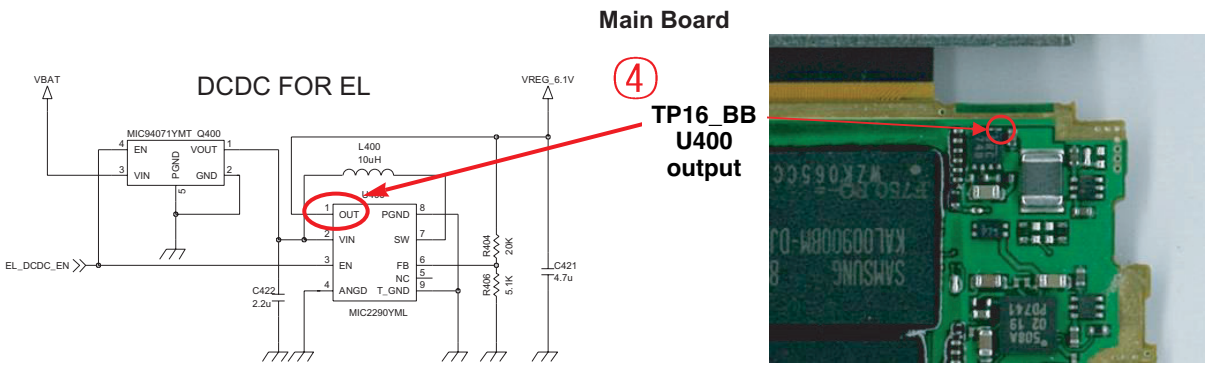


The output must be 3.1V DC.



The output must be 3.1V DATA or Clock signal



The output must be 6.1V DC.

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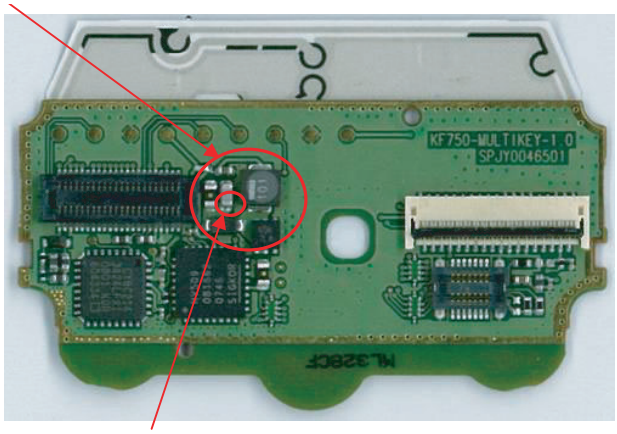
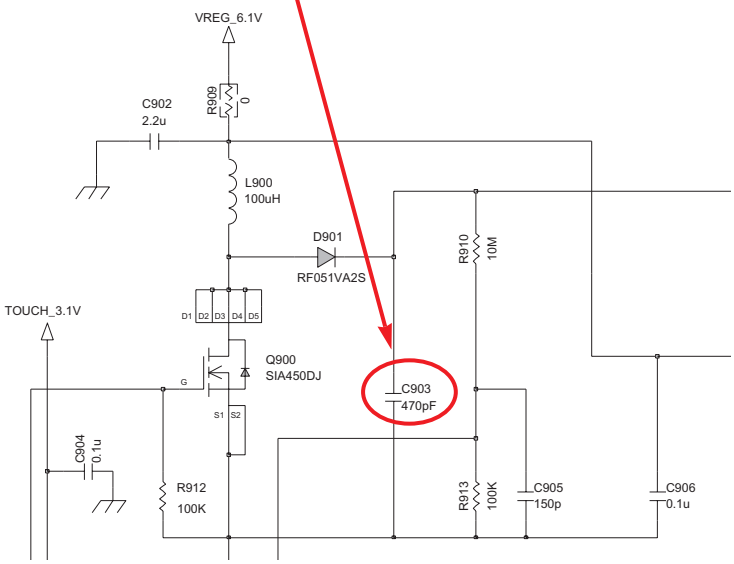
EL sheet operating voltage generator
(L900, D901, Q900, C903, R910 or R913)

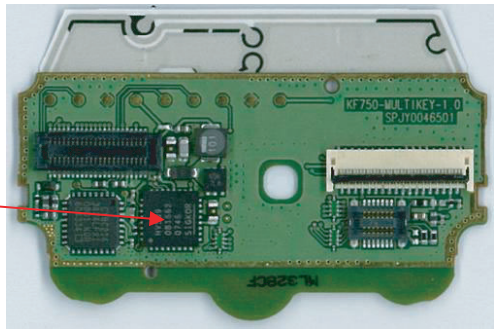
Multikey



⑤ **TP17_BB**
Check the output of C903
Output must be 190V AC about 800KHz



⑥ **Replace U900**



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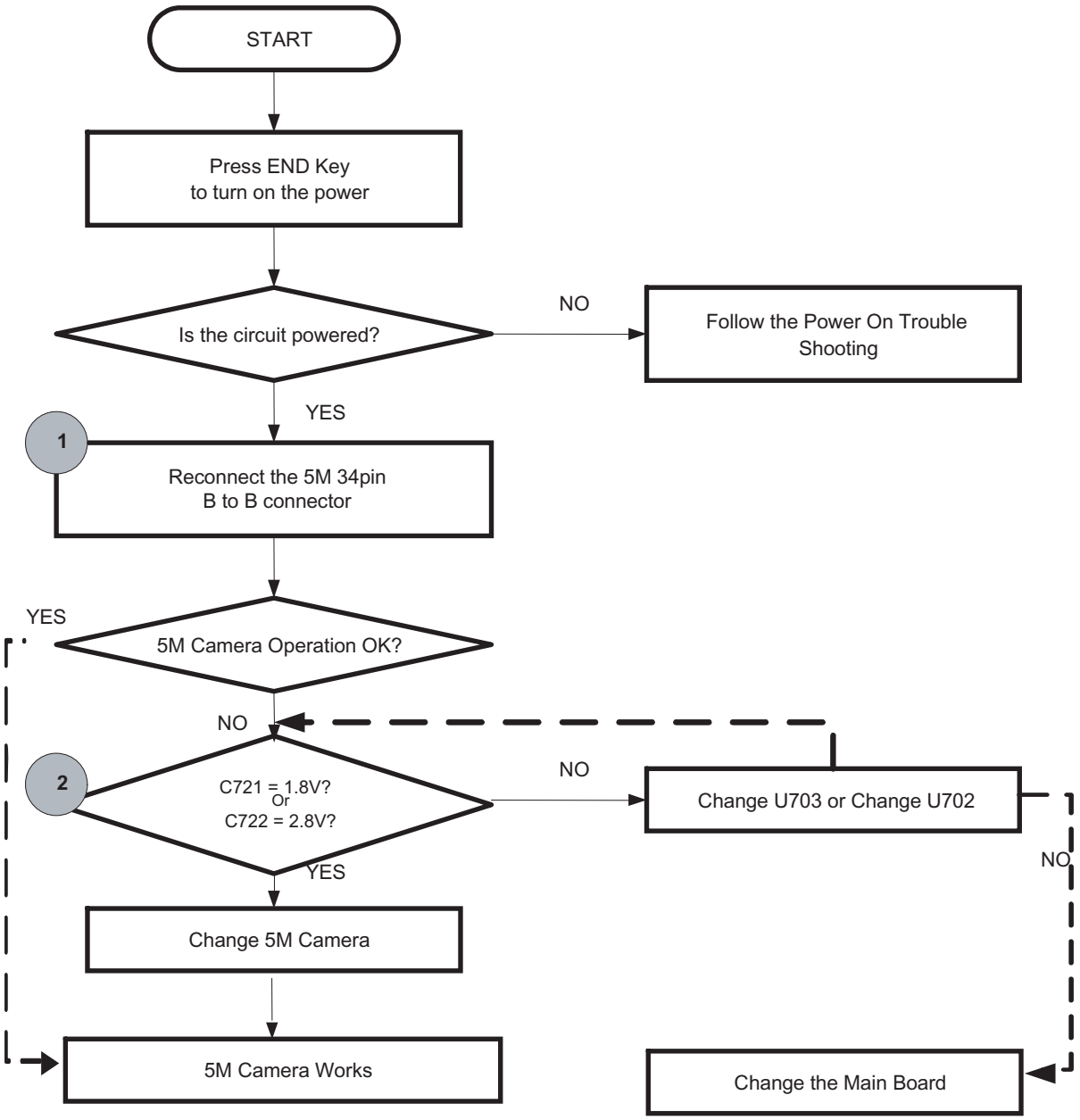
4.7 Camera Trouble

5M Camera control signals are generated by Zoran.

4.7.1 5M Camera



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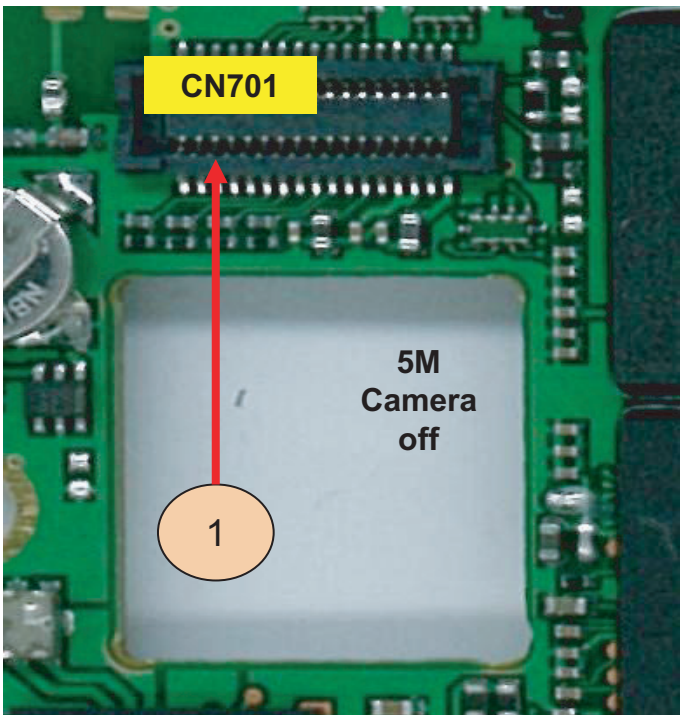

34pin 5M Camera Connector in Main Board

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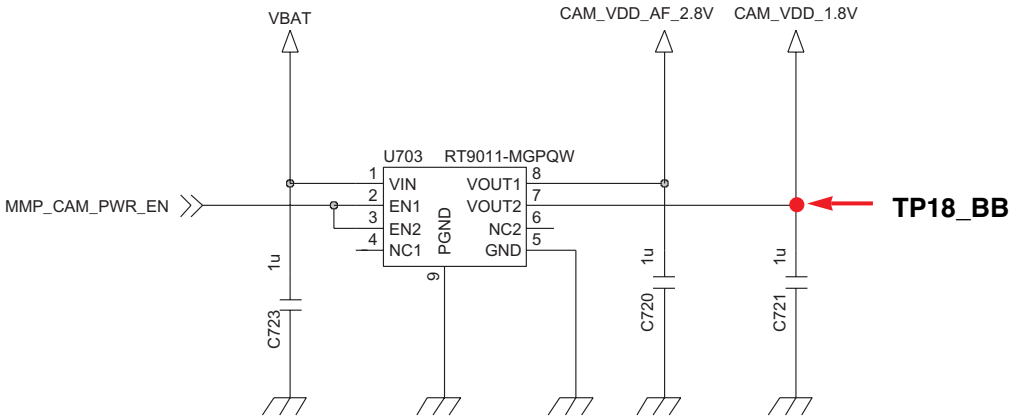
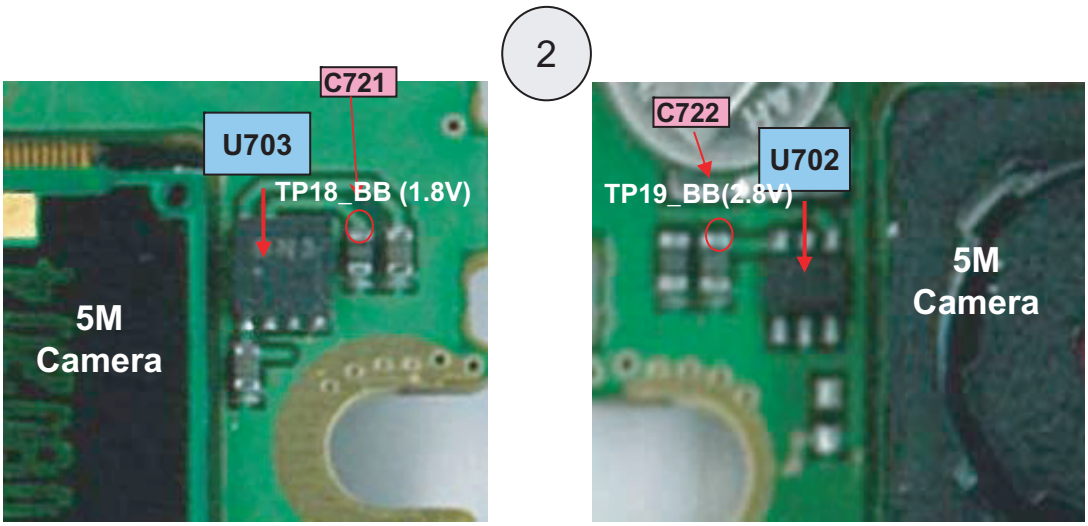
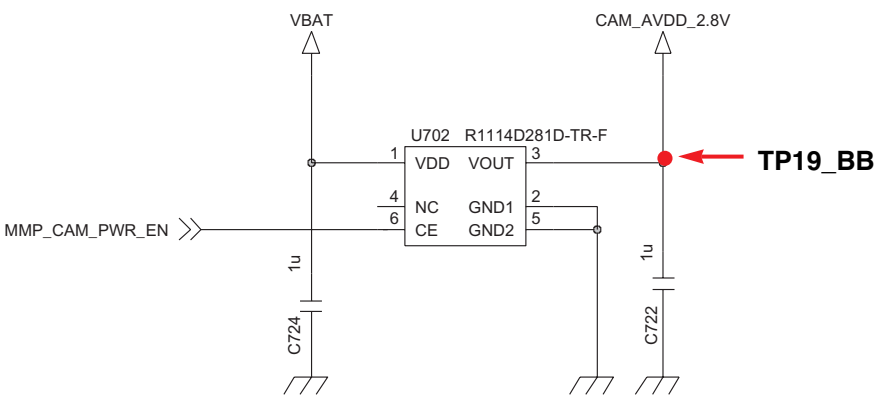




5M Regulator in Main Board (Top)

5M Regulator in Main Board (Bottom)



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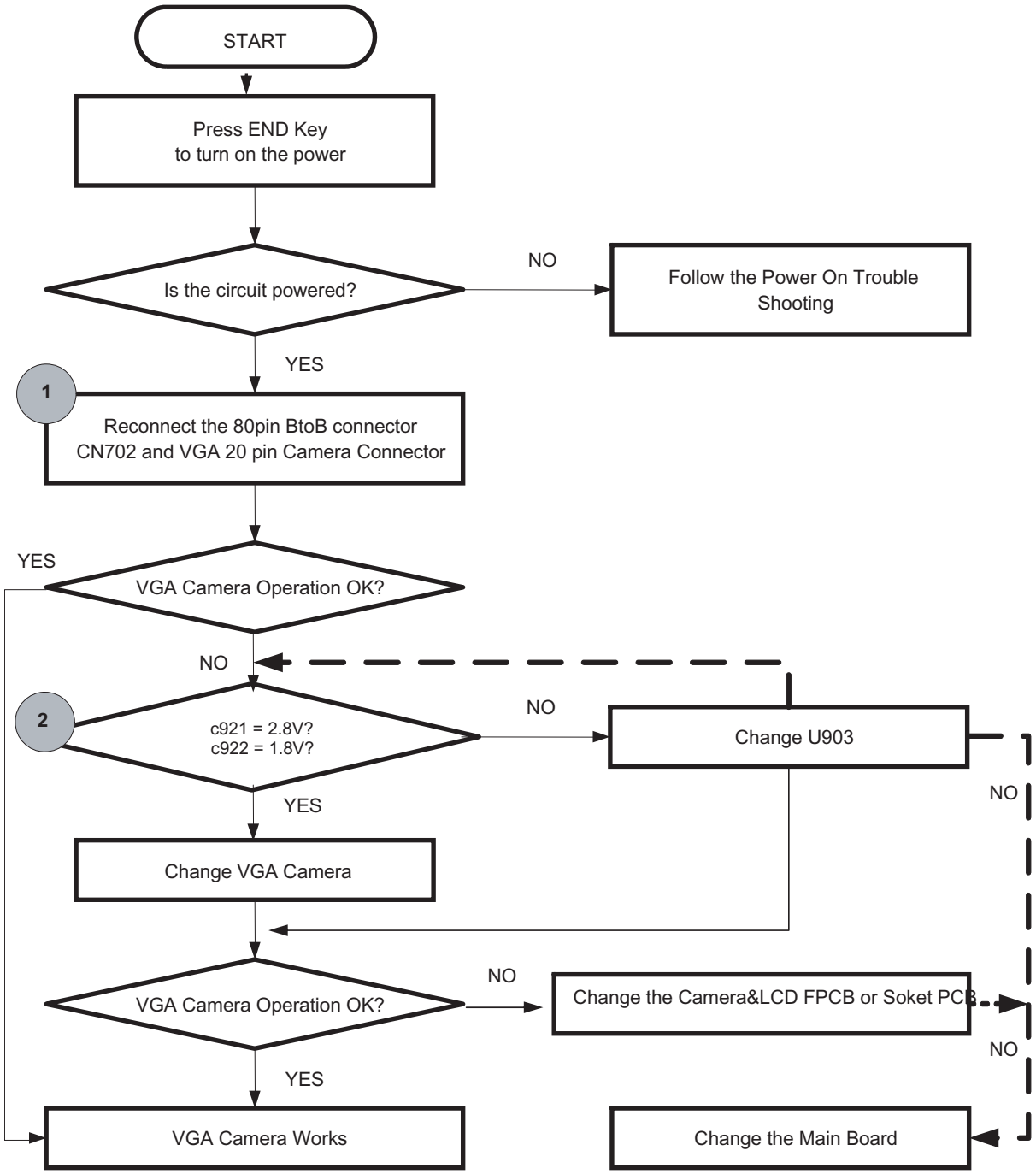
4.7.2 VGA Camera

VGA Camera control signals are generated by DB3150.



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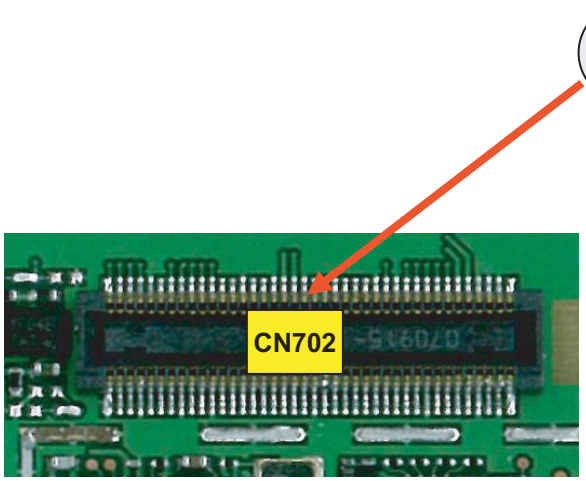
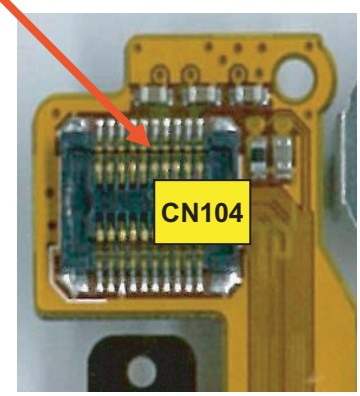


Main Board 80 pin BtoB Connector



LCD FPCB 20 pin VGA Connector

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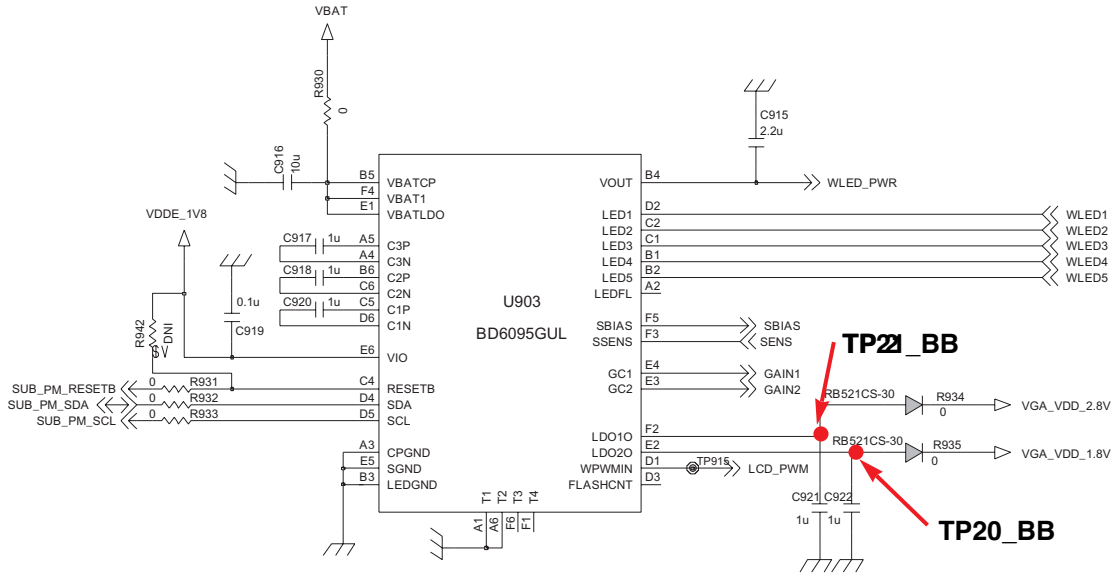

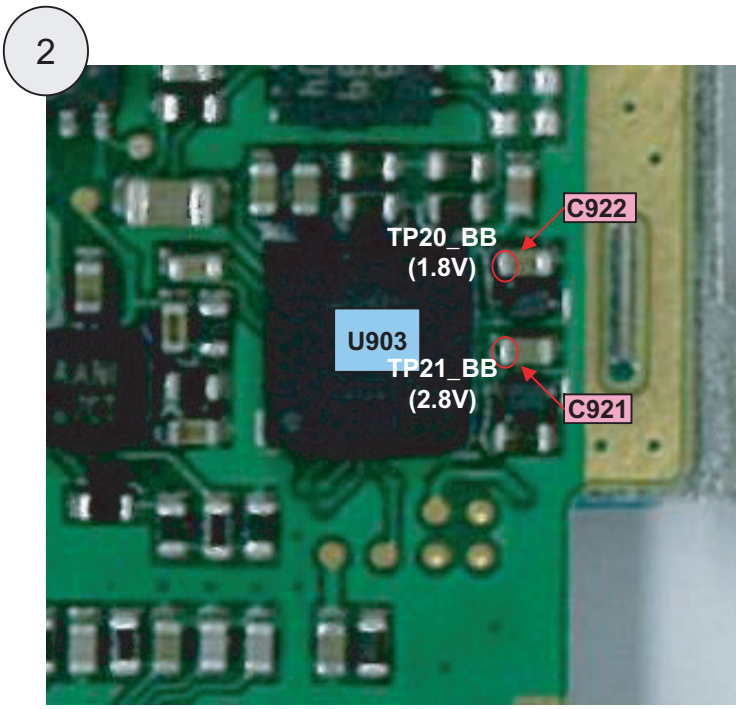

Charge Pump in Socket Board

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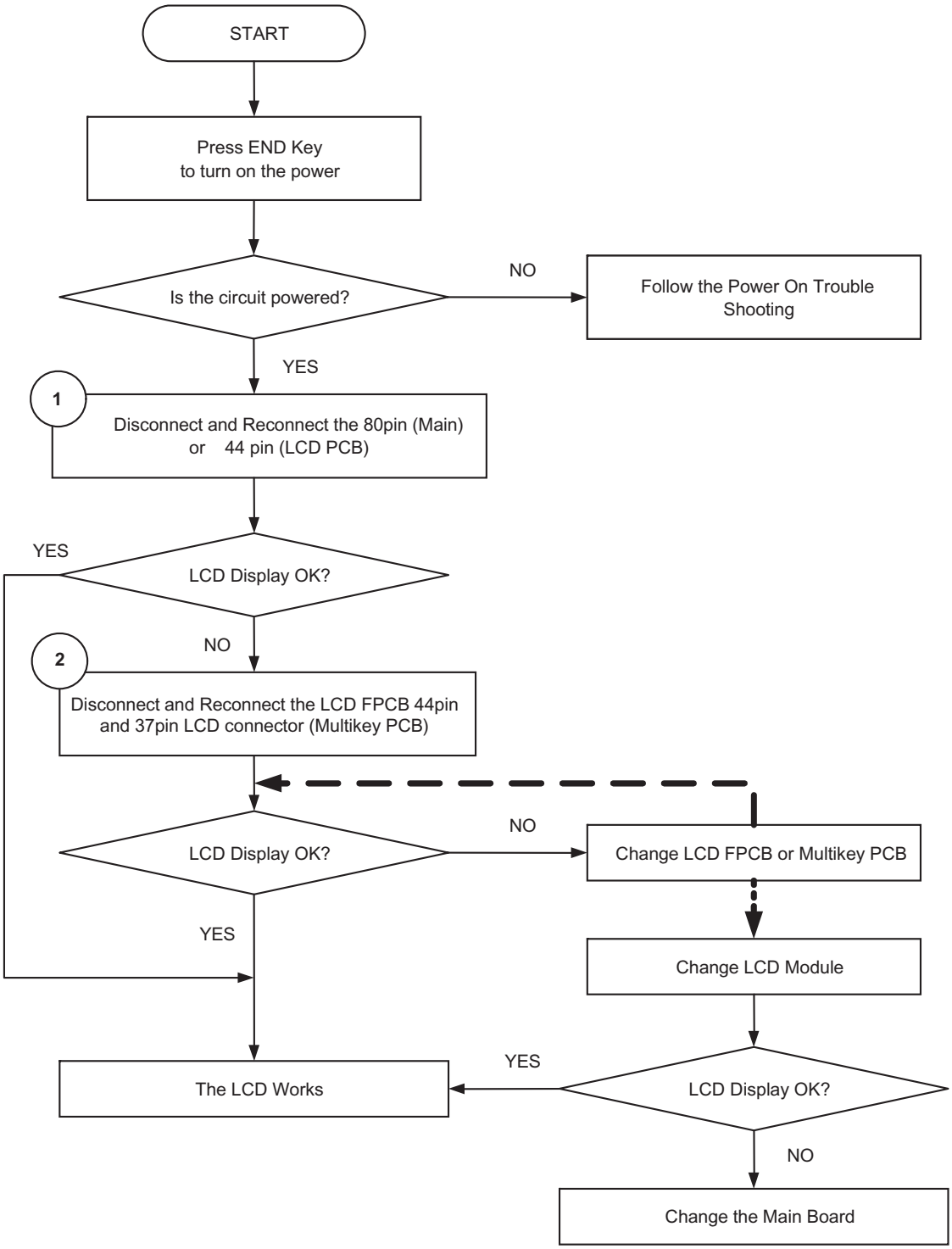
4.8 Main LCD Trouble

LCD control signals are generated by DB3150.



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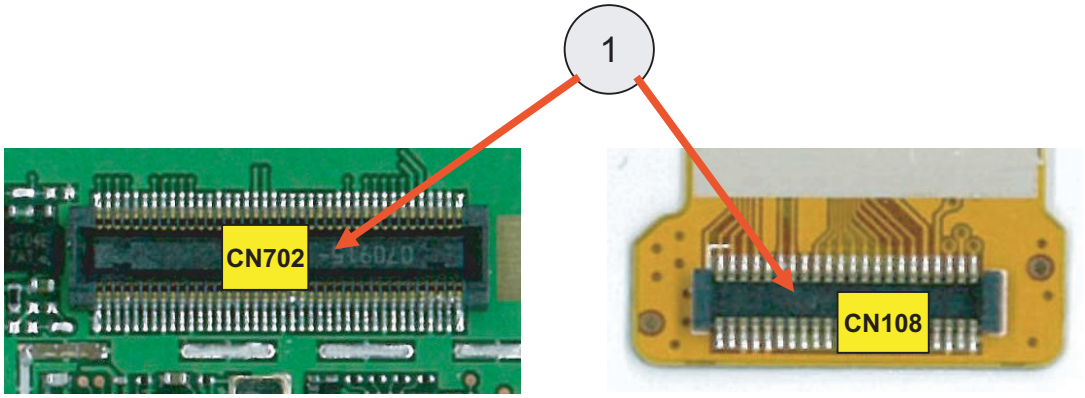
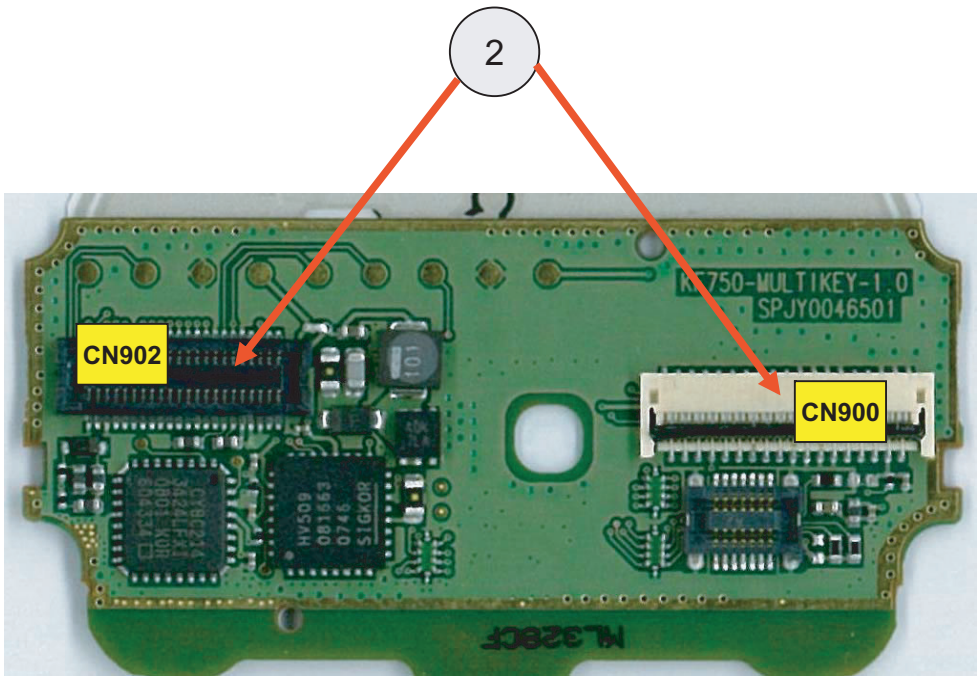


Main Board 80 pin BtoB Connector

LCD FPCB 44 pin BtoB Connector



Multikey PCB 44pin & 37pin LCD Connector

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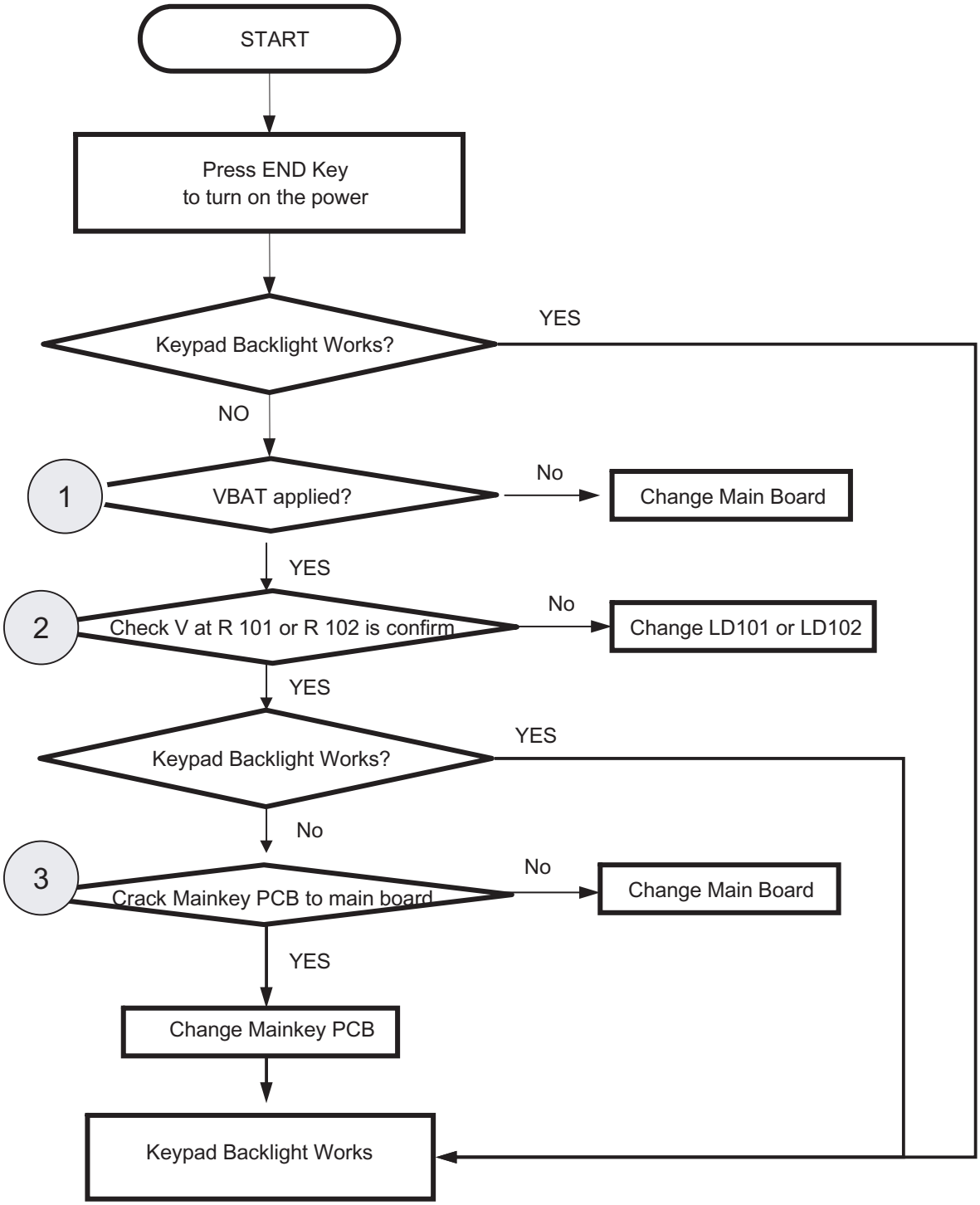
4.9 Keypad Backlight Trouble



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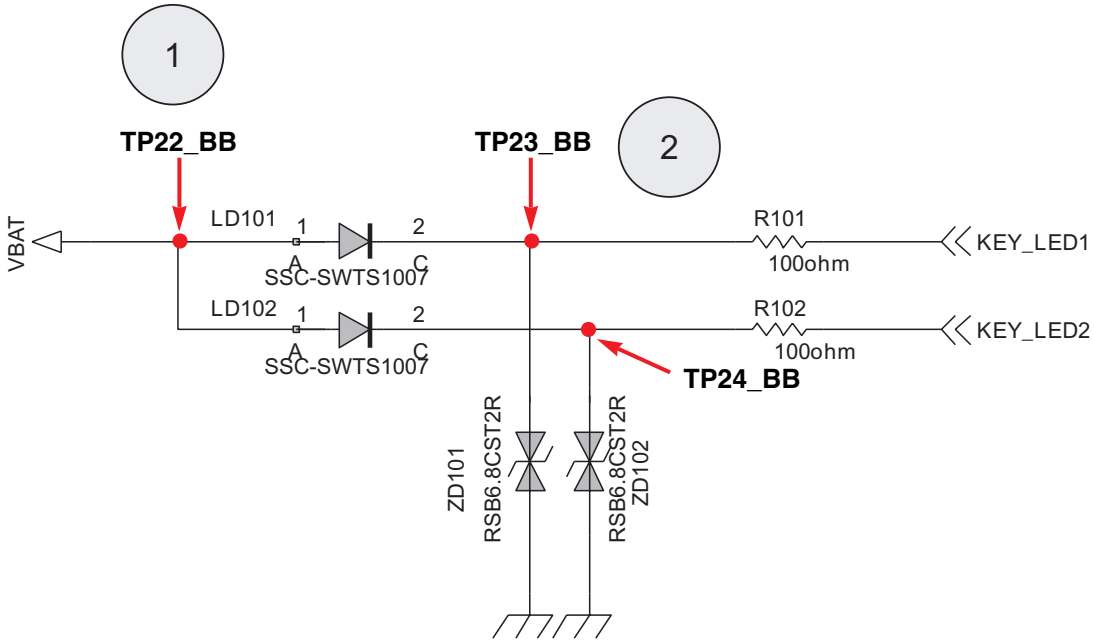

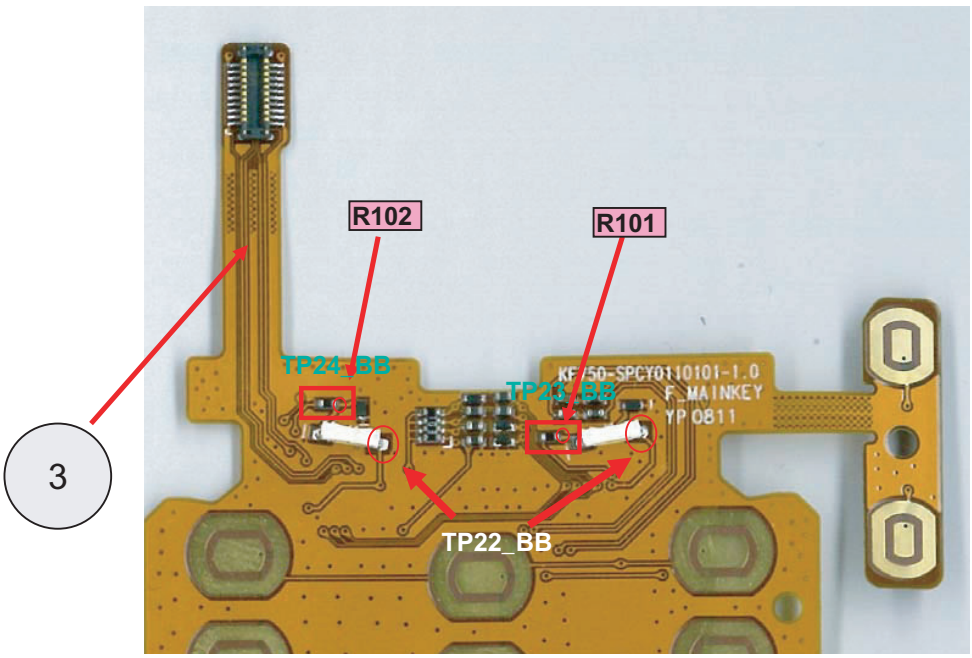

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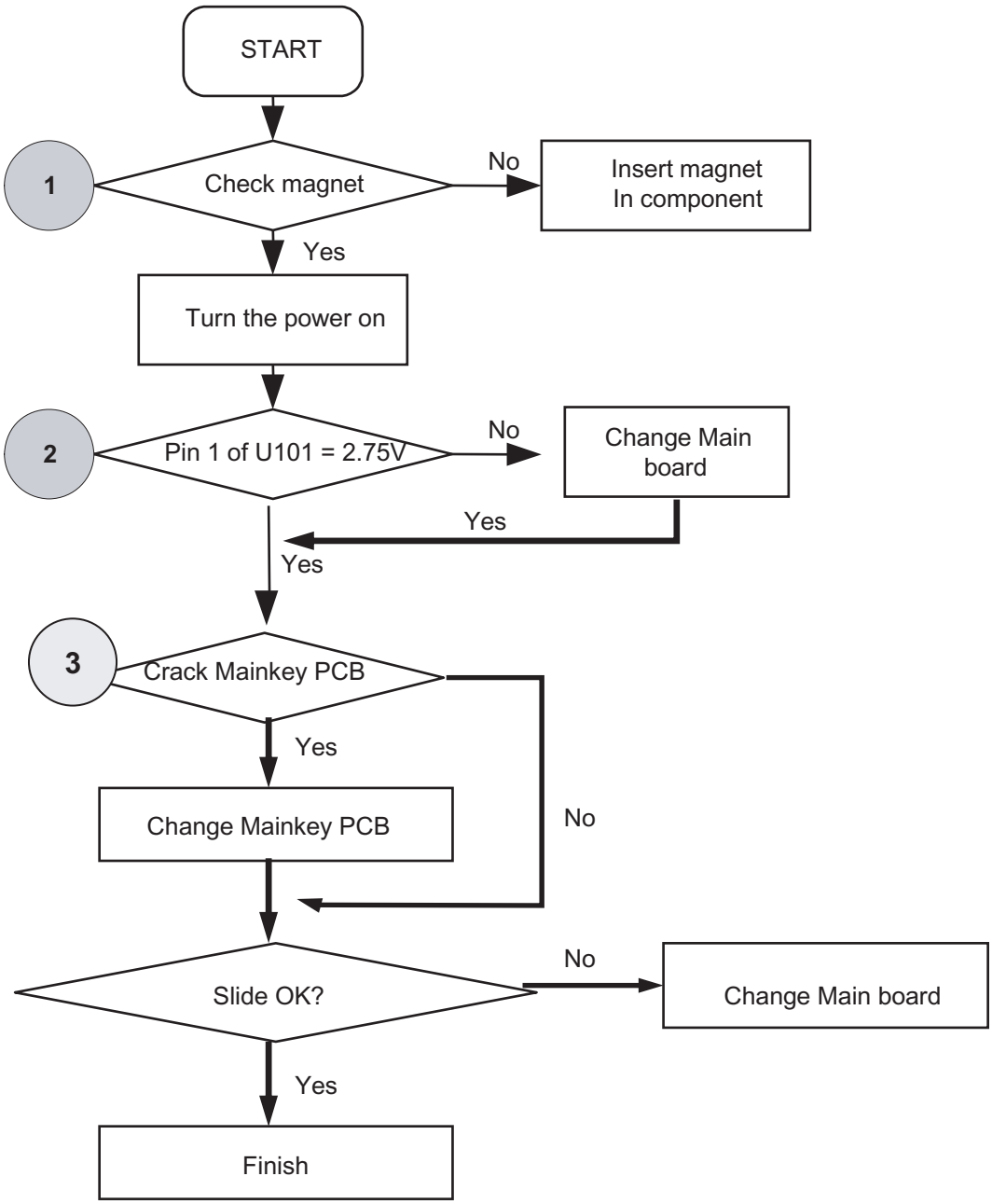
4.10 Folder ON/OFF Trouble



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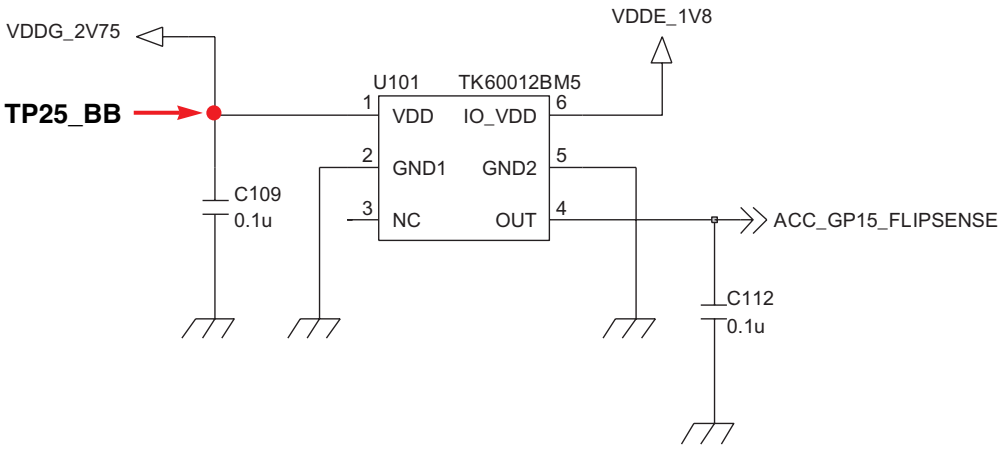
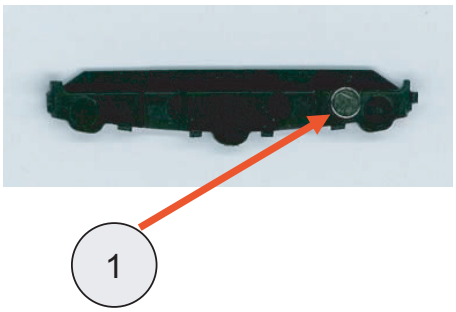
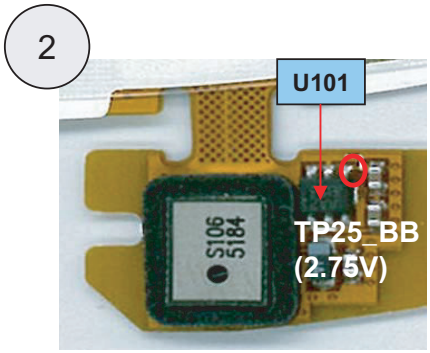
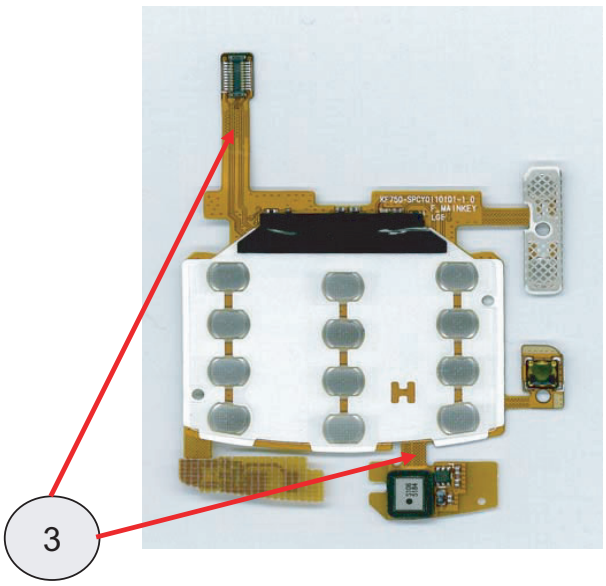




Be sure that magnet is here





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4.11 Audio Trouble Shooting

4.11.1 Receiver

• Signals to the receiver

- Receiver signals are generated at Veronica
  - • BEARP, BEARN
- Receiver path:
  - • 1. Veronica (BEARP, BEARN)r →
  - • 2. R518,R519 on main boardr →
  - • 3. U501 (Analog switch) on main boardr →
  - • 3. LCD FPCBr →
  - • 4. Speaker/Receiver

• **Note:** It is recommended that engineer should check the soldering of R, L, C along the corresponding path before every step.

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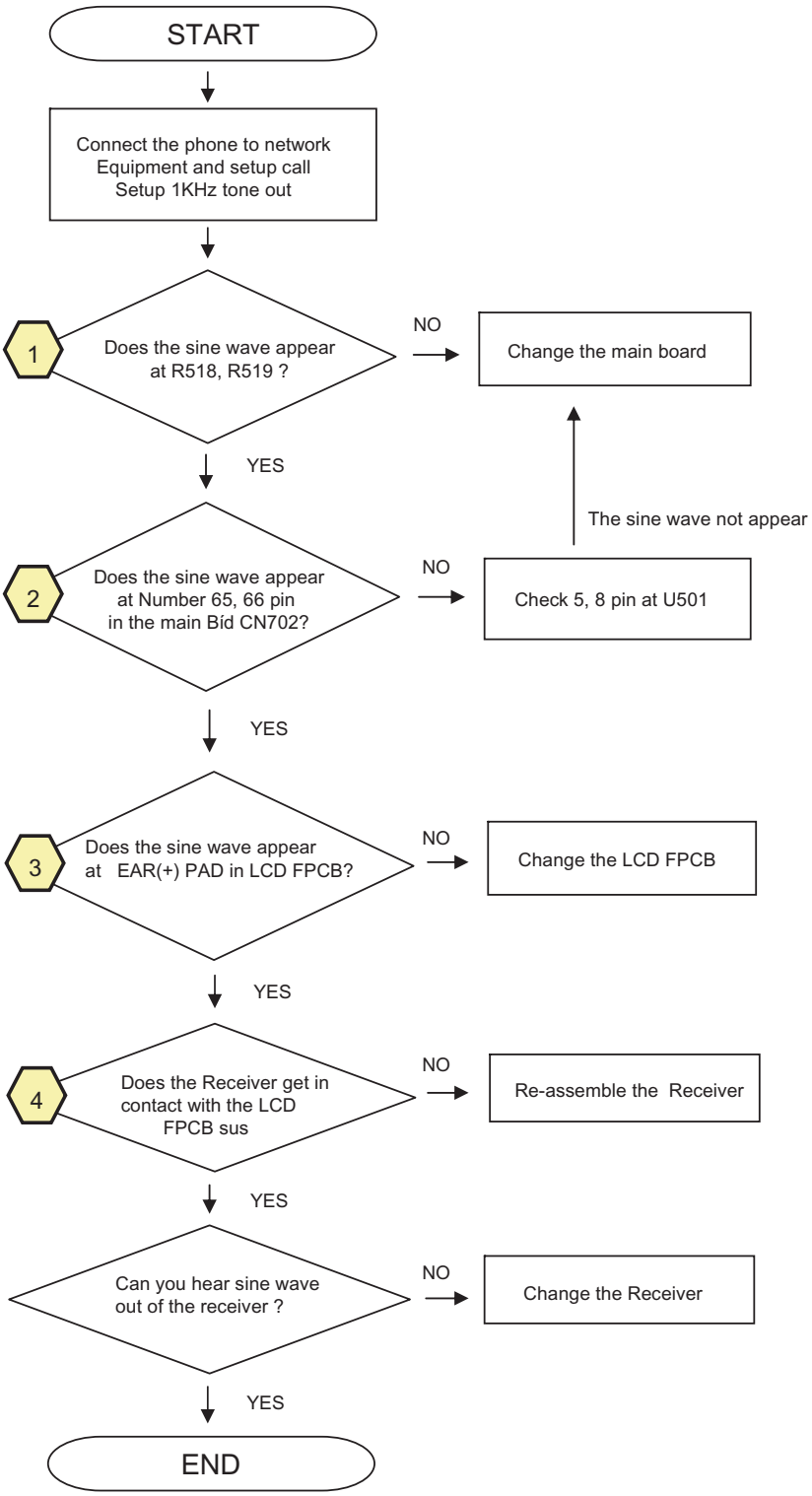
4. TROUBLE SHOOTING



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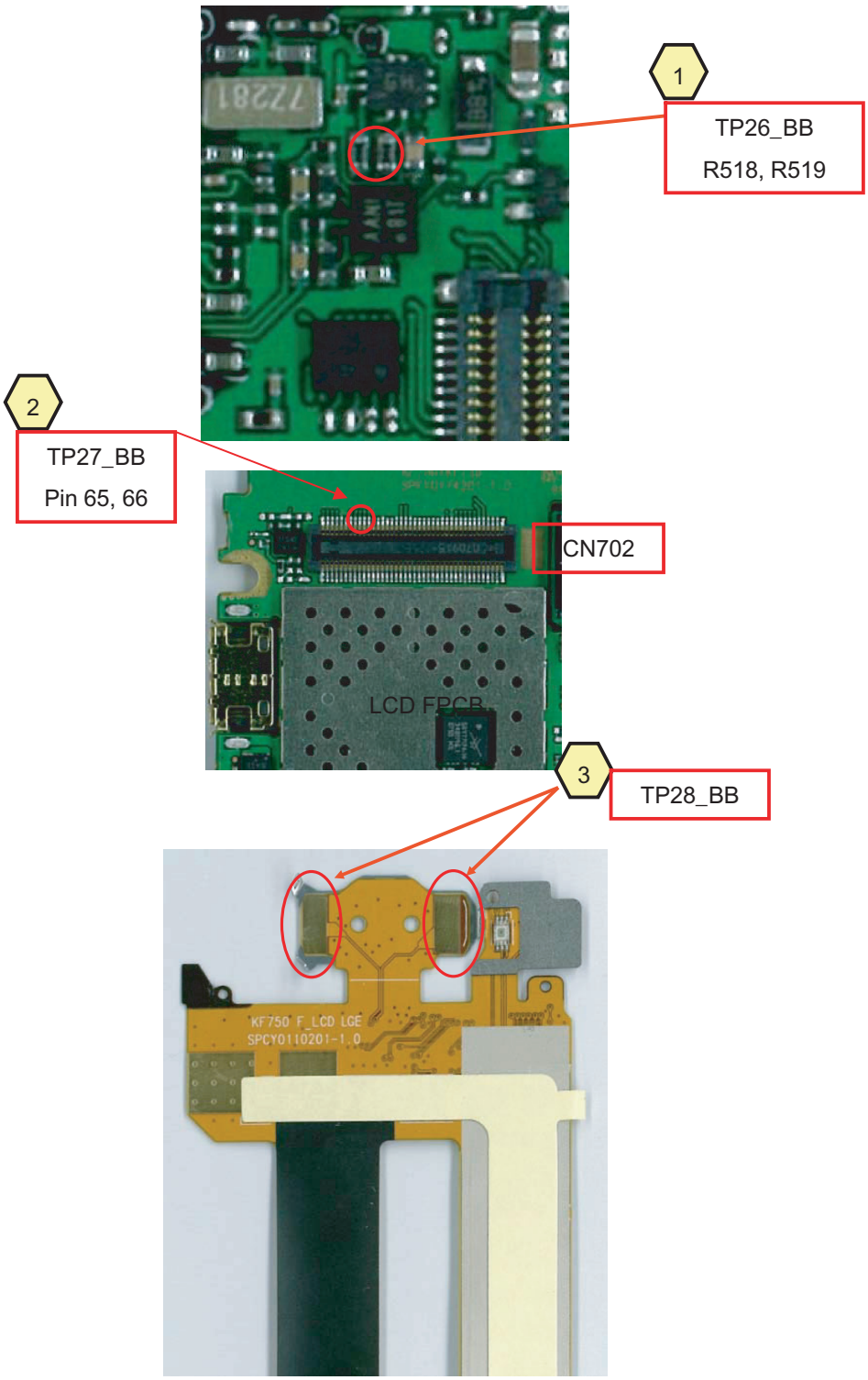

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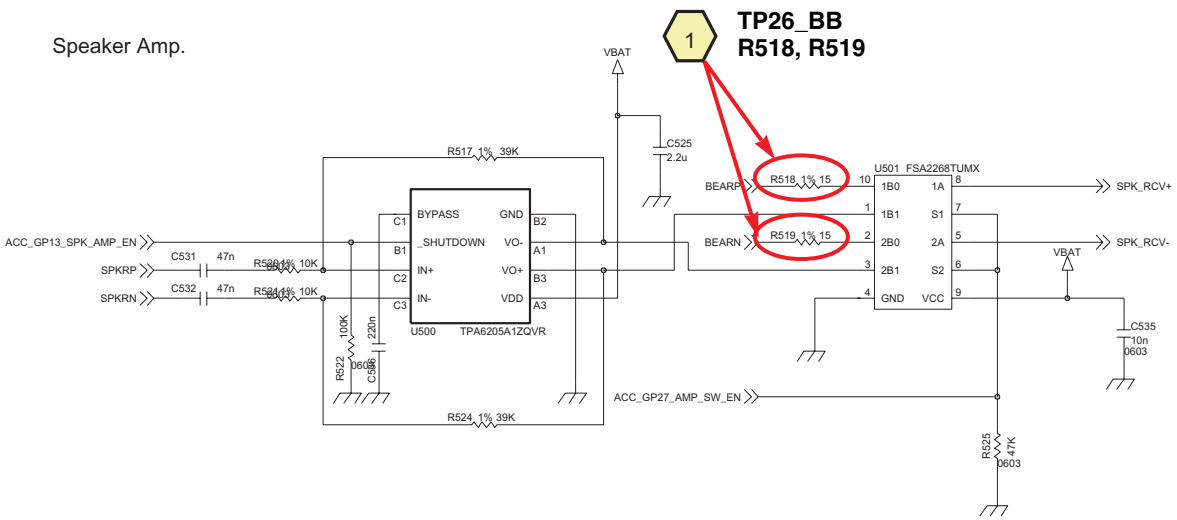

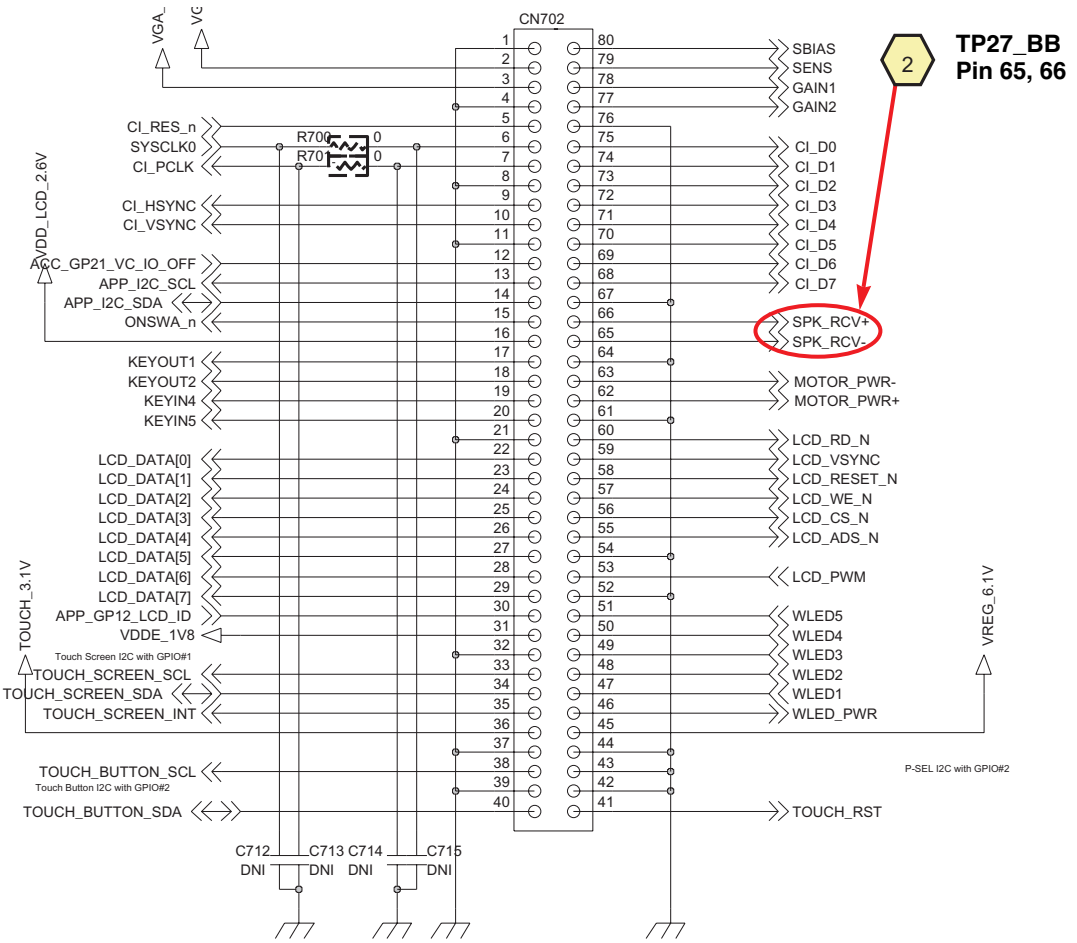

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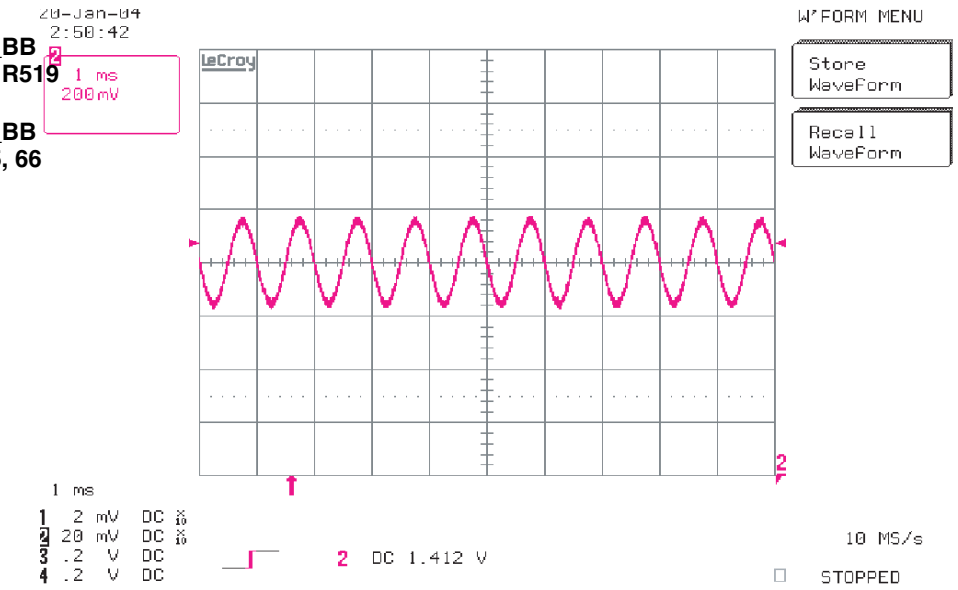
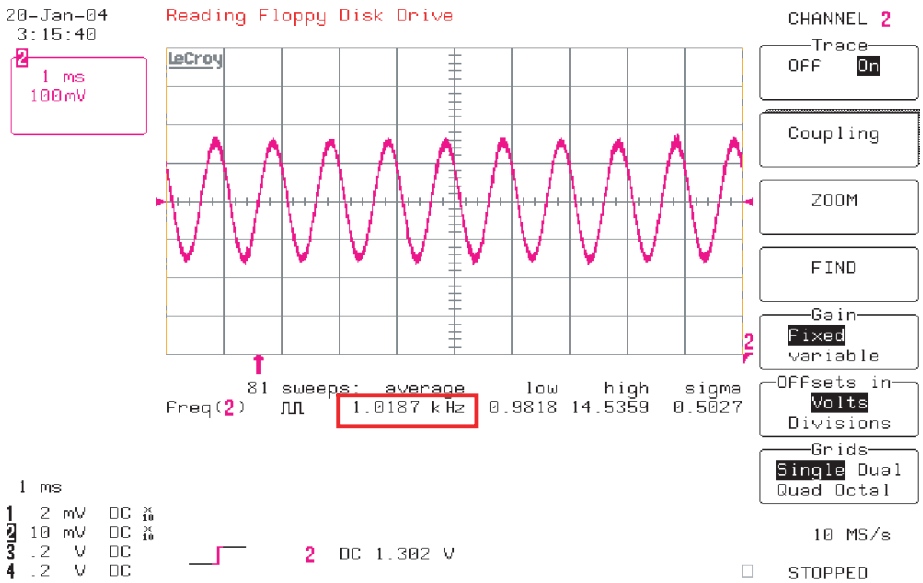
1 **TP26_BB**
R518, R519

2 **TP27_BB**
Pin 65, 66



Measured 1khz Sine Wave Signal

3 **TP28_BB**



Measured 1khz Sine Wave Signal

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4.11.2 Speaker (Voice Loud Speaker, Midi, MP3, Key Tone)

• Signals to the speaker

- Speaker signals are generated at Veronica
  - • SPKRP, SPKRN
- Speaker path:
  - • 1.Veronica (SPKRP, SPKRN) →
  - • 2. C531, C532 on the main board →
  - • 3. U500(audio amp) on the main board →
  - • 4. U501 (Analog switch) on the main board →
  - • 5. LCD FPCB →
  - • 5.Speaker/Receiver

• **Note:** It is recommanded that engineer should check the soldering of R, L, C along the corresponding path before every step.

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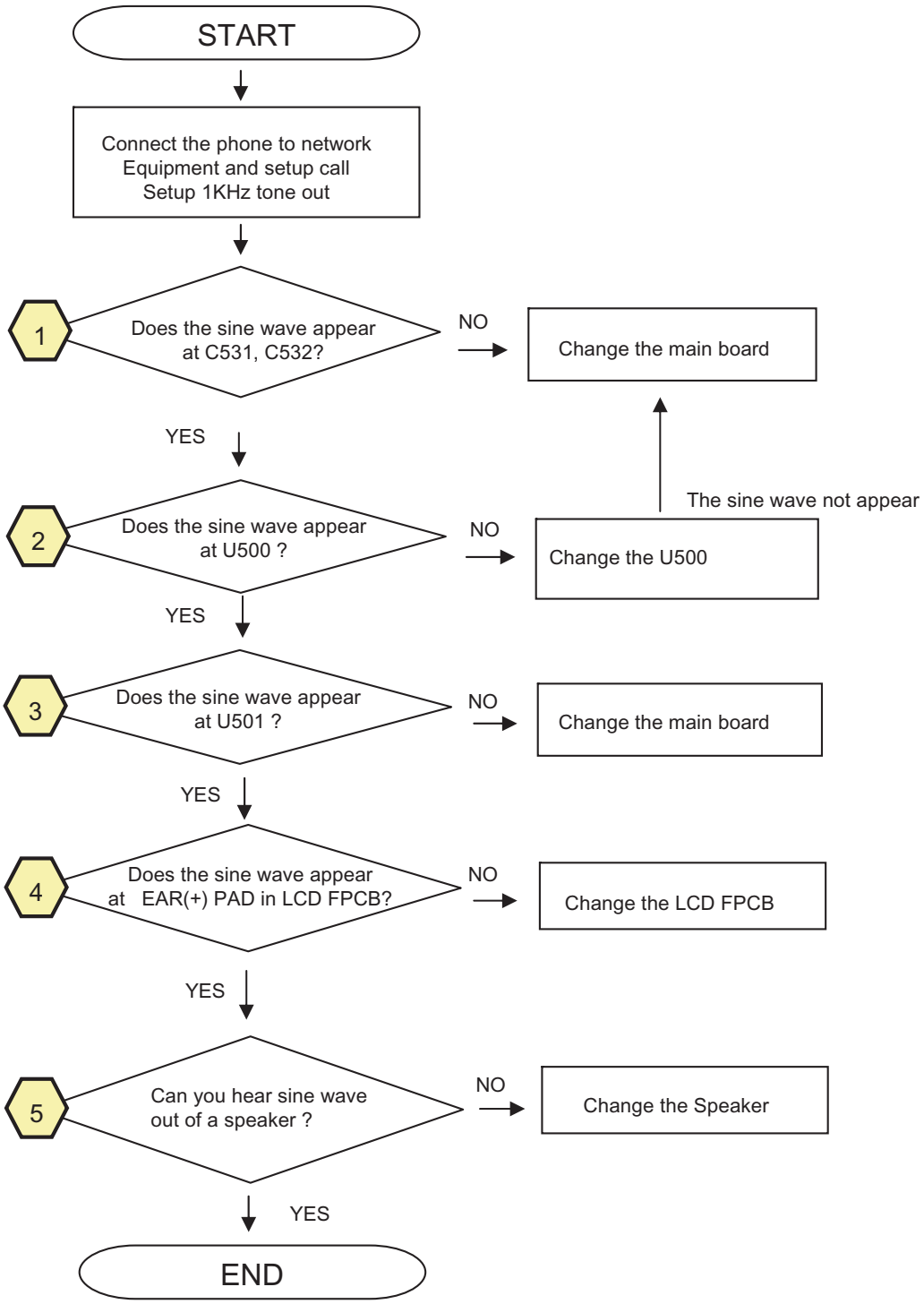

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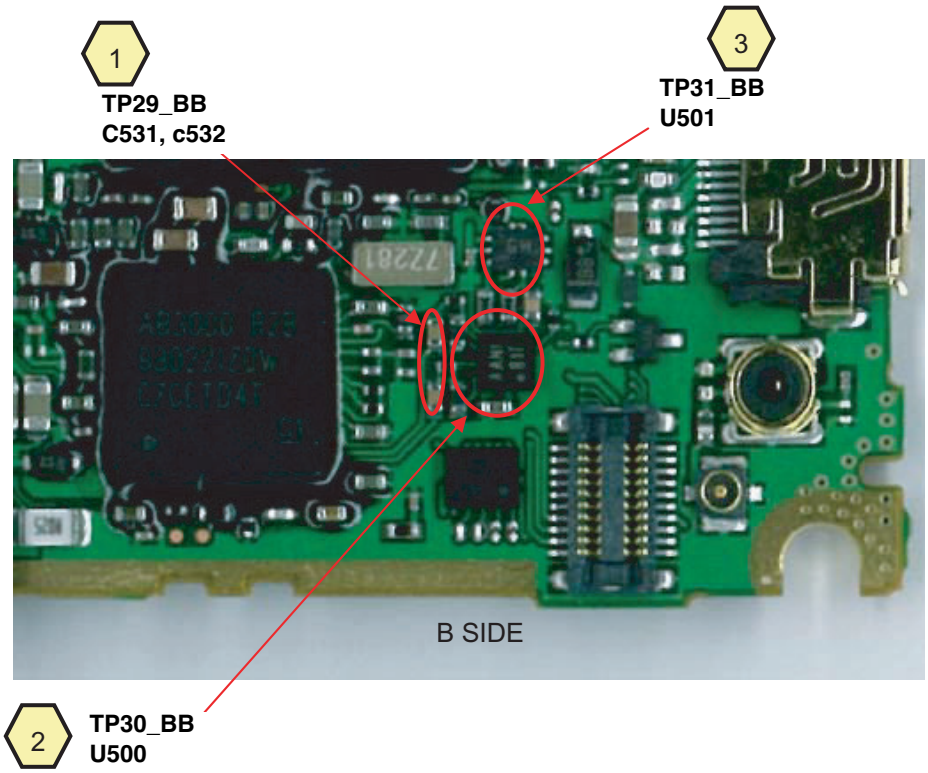

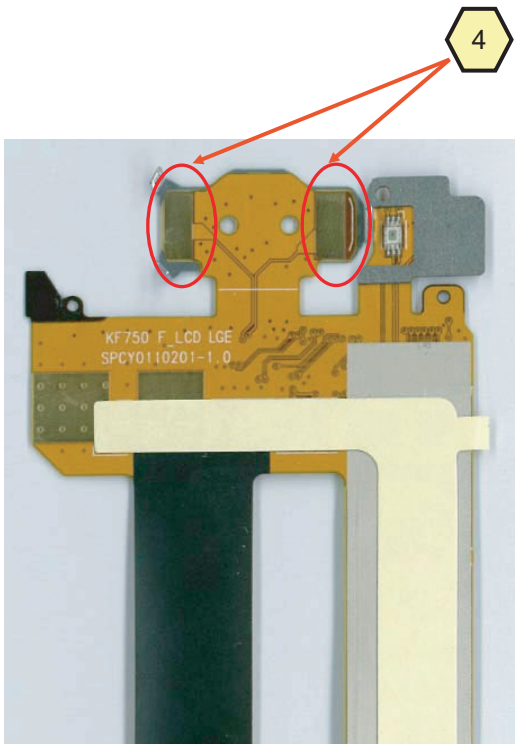

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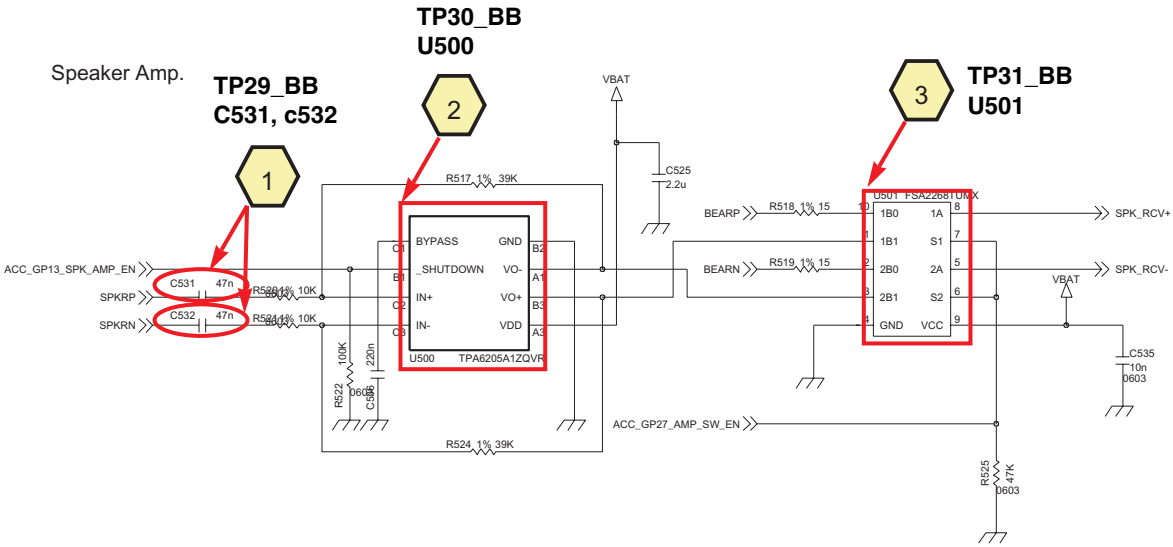

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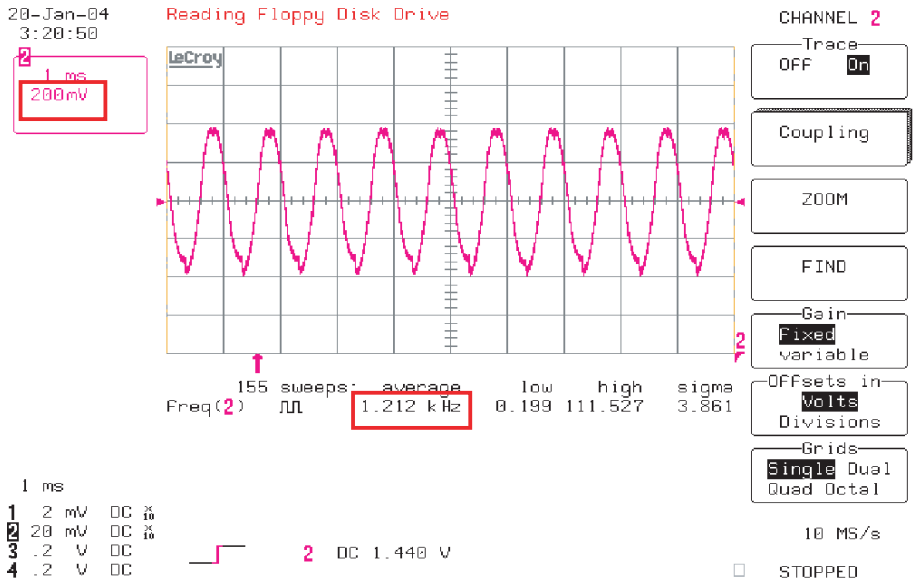

Measured 1khz Sine Wave Signal

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4.11.3 Microphone (Voice call, Voice Recorder, Video Recorder)

• Microphone Signal Flow

- MIC is enable by MIC Bias
- CCO1, MIC1P, MIC1N signals to ABB3000 (Veronica)

• Check Points

- Microphone bias
- Audio signal level of the microphone
- Soldering of components

• Signal from the mic

- MIC →
- C104 on mainkey PCB →
- C106, C108 on mainkey PCB →
- R103, R104 on mainkey PCB →
- Veronoca →

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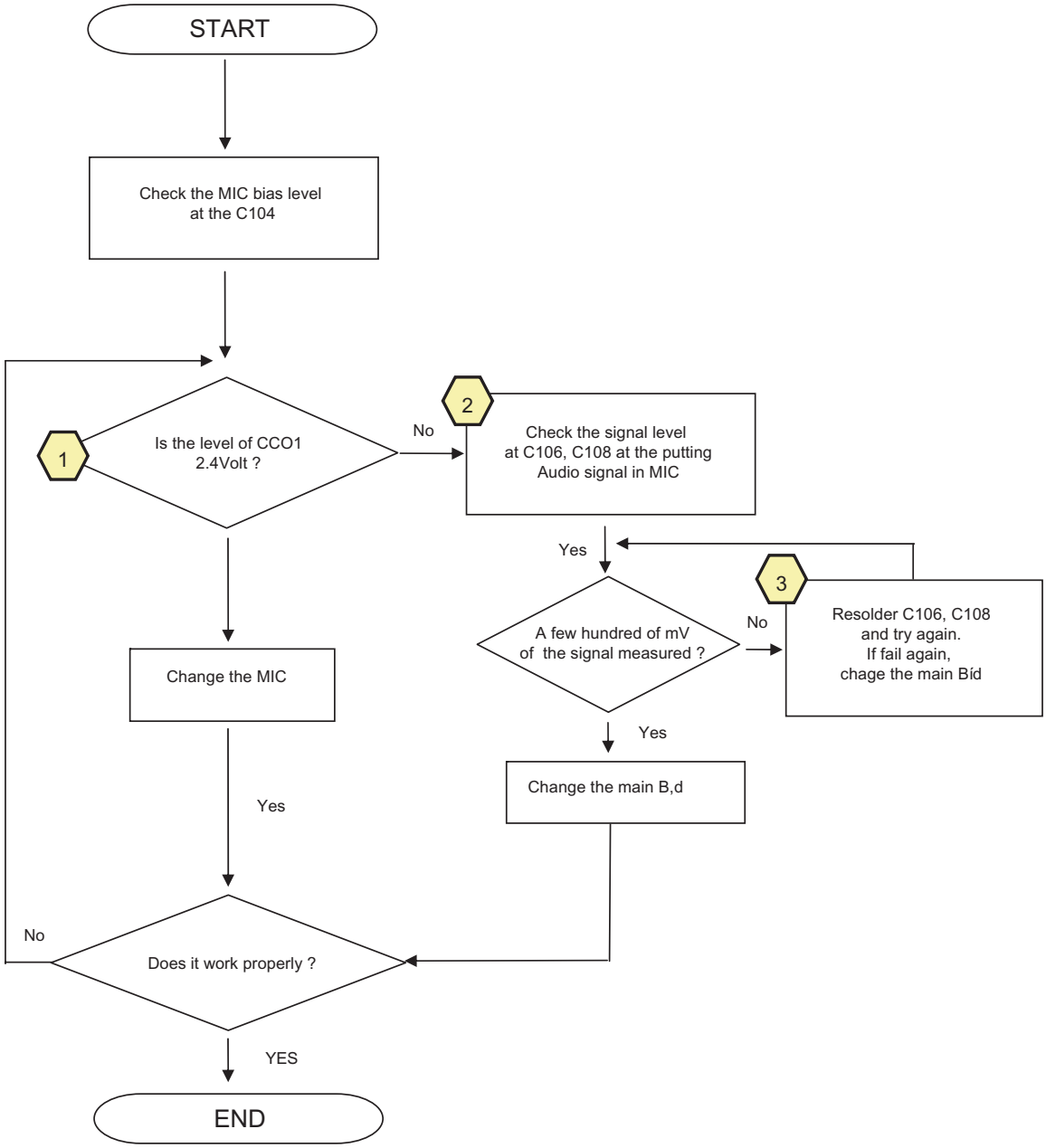

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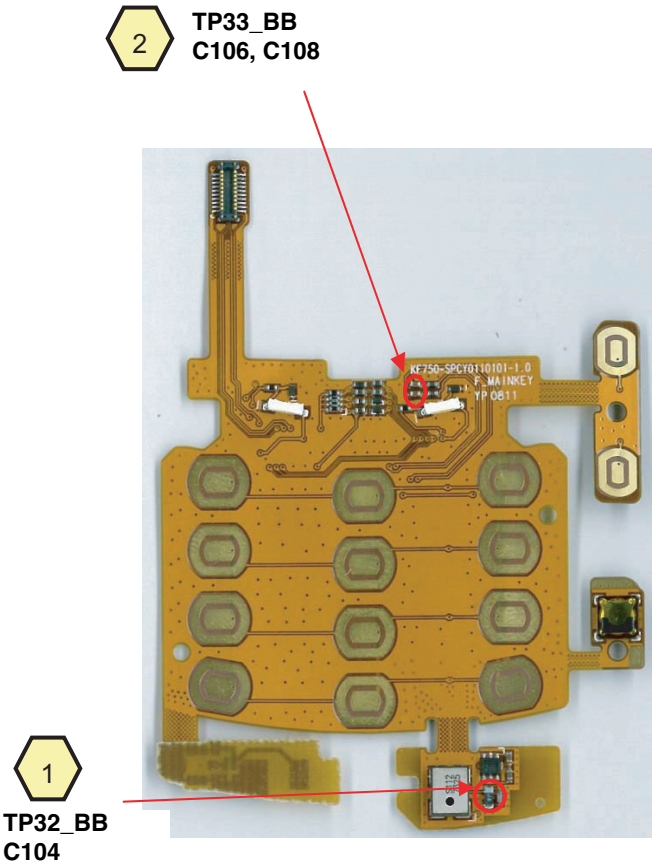

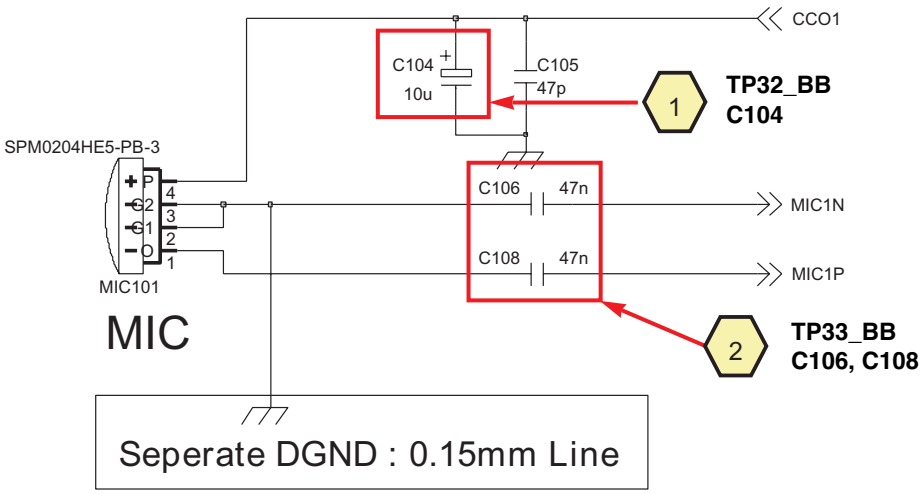

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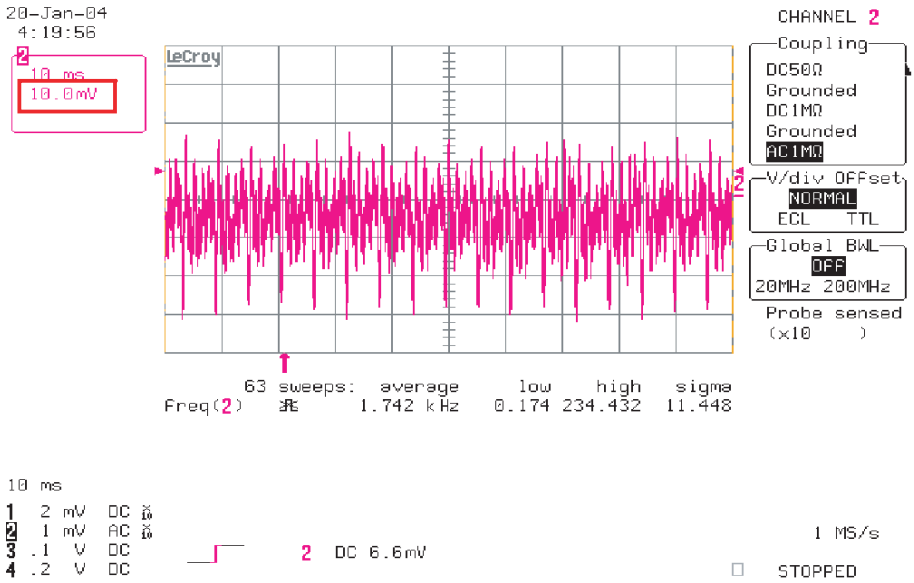
2

TP33_BB
C106, C108



Measured Some Noise Signal

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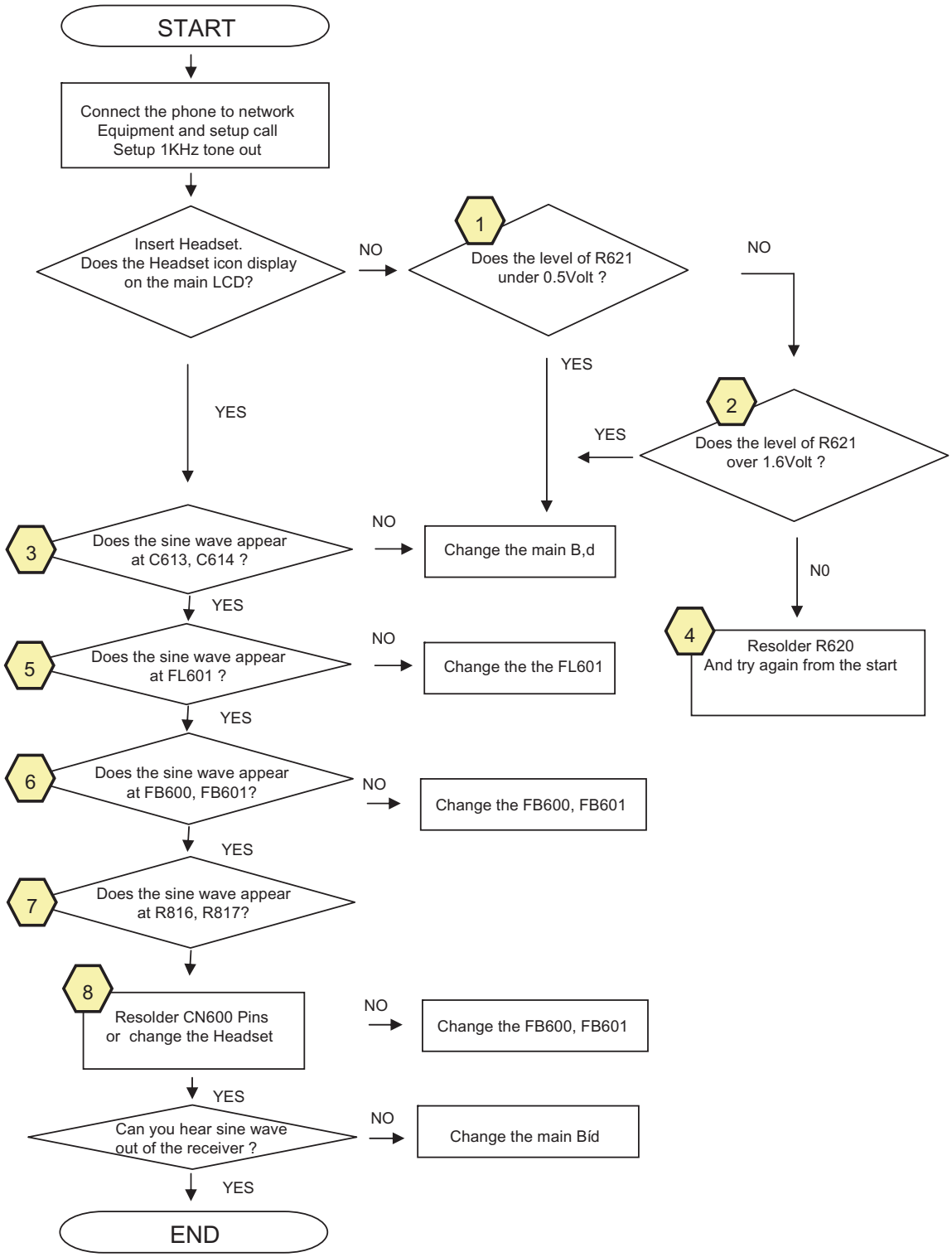
4.11.4 Headset Receiver (Voice call, Video Telephony, MP3)



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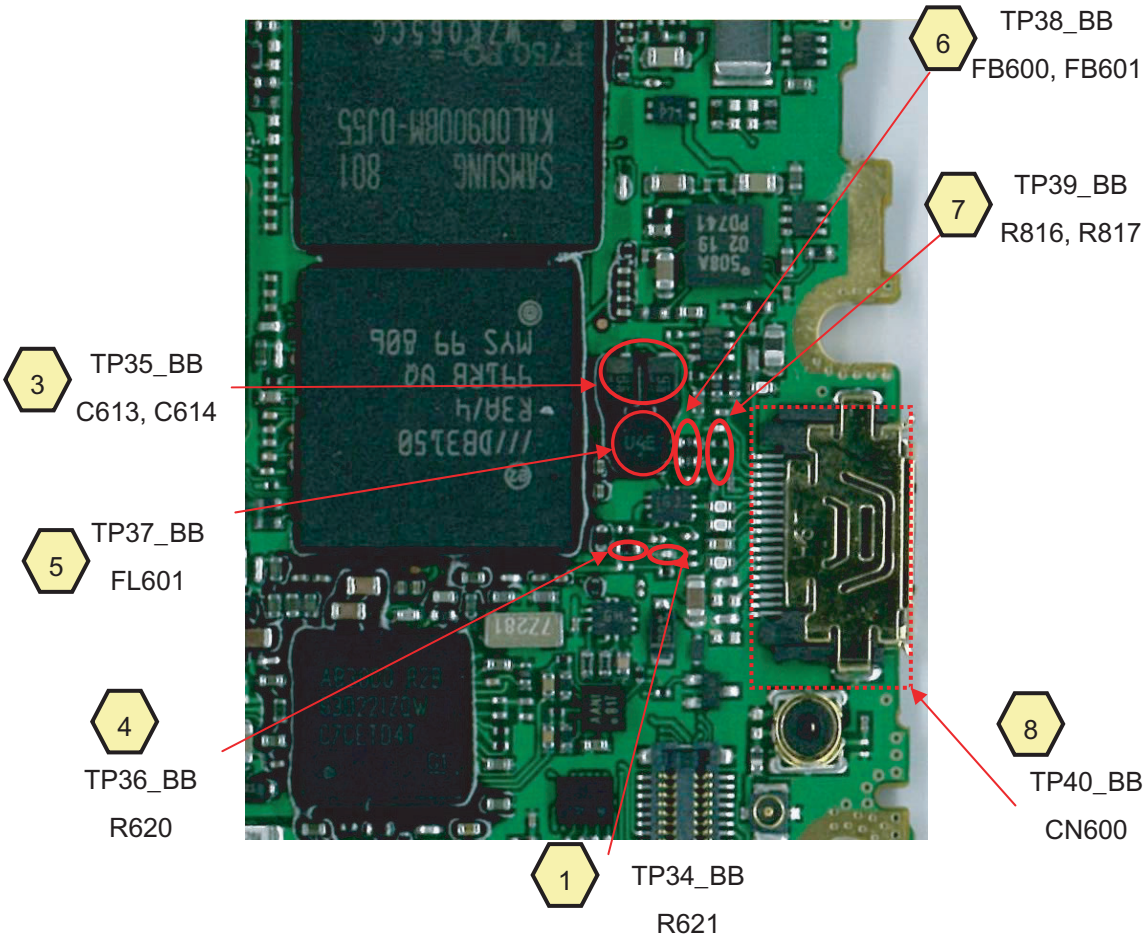

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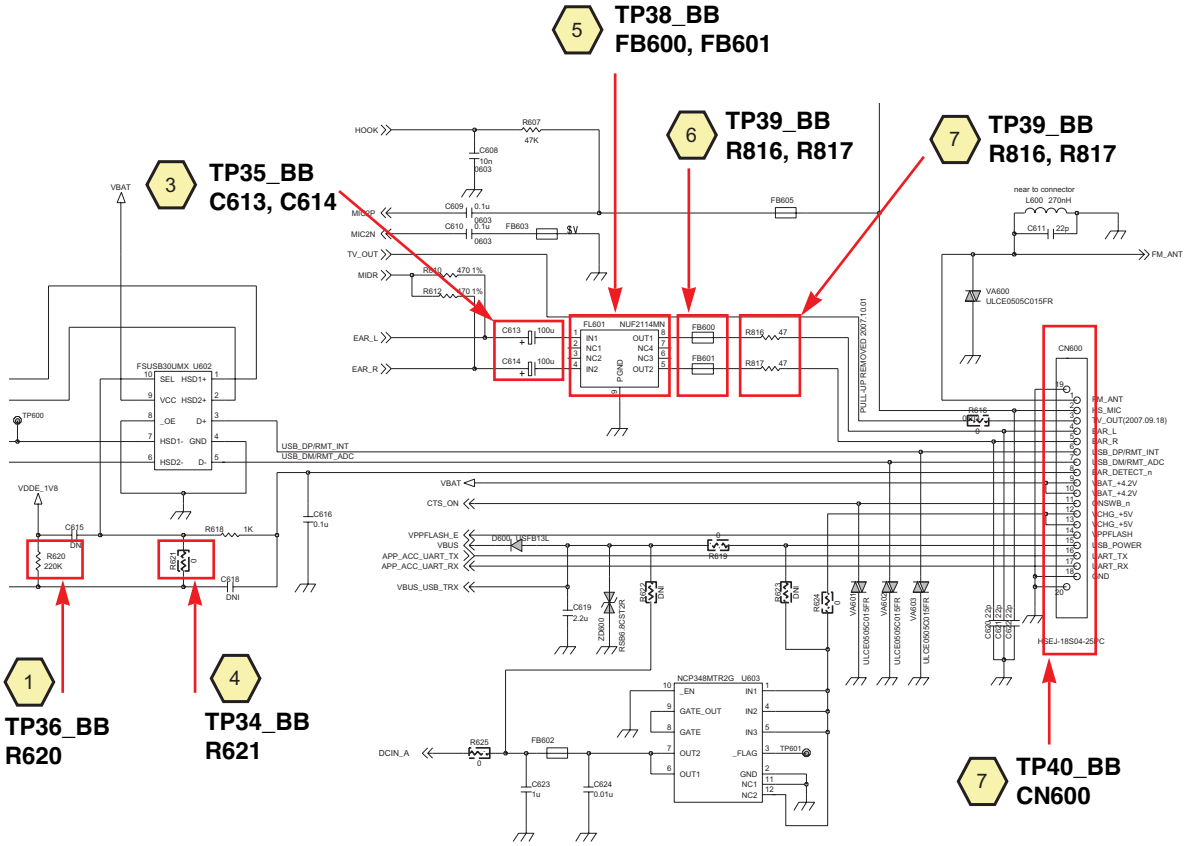

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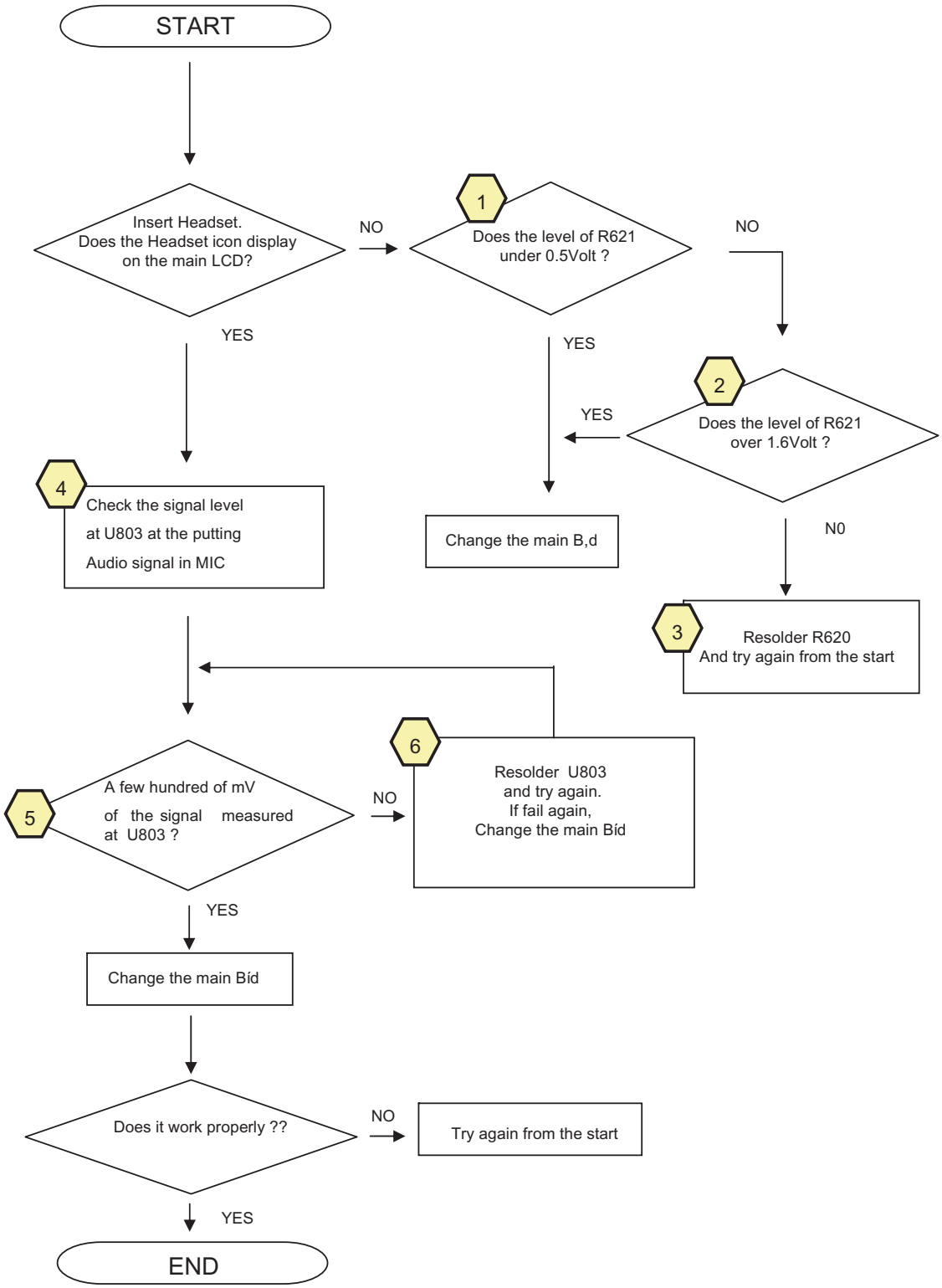
4.11.5 Headset MIC(Voice call, Video Telephony)



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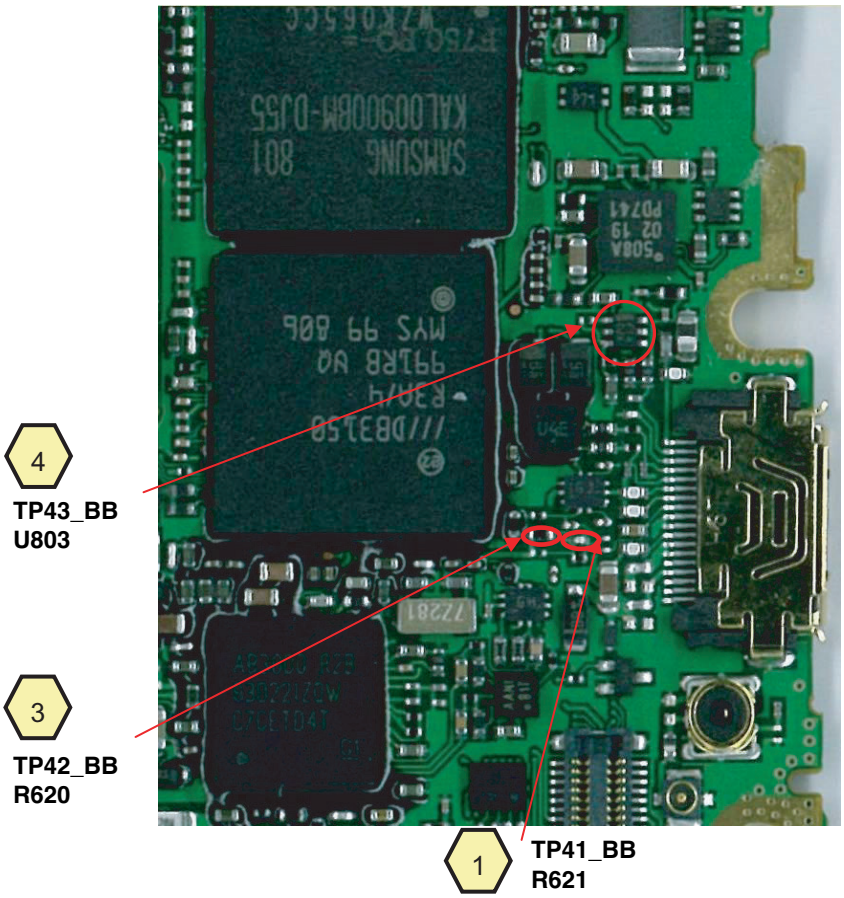

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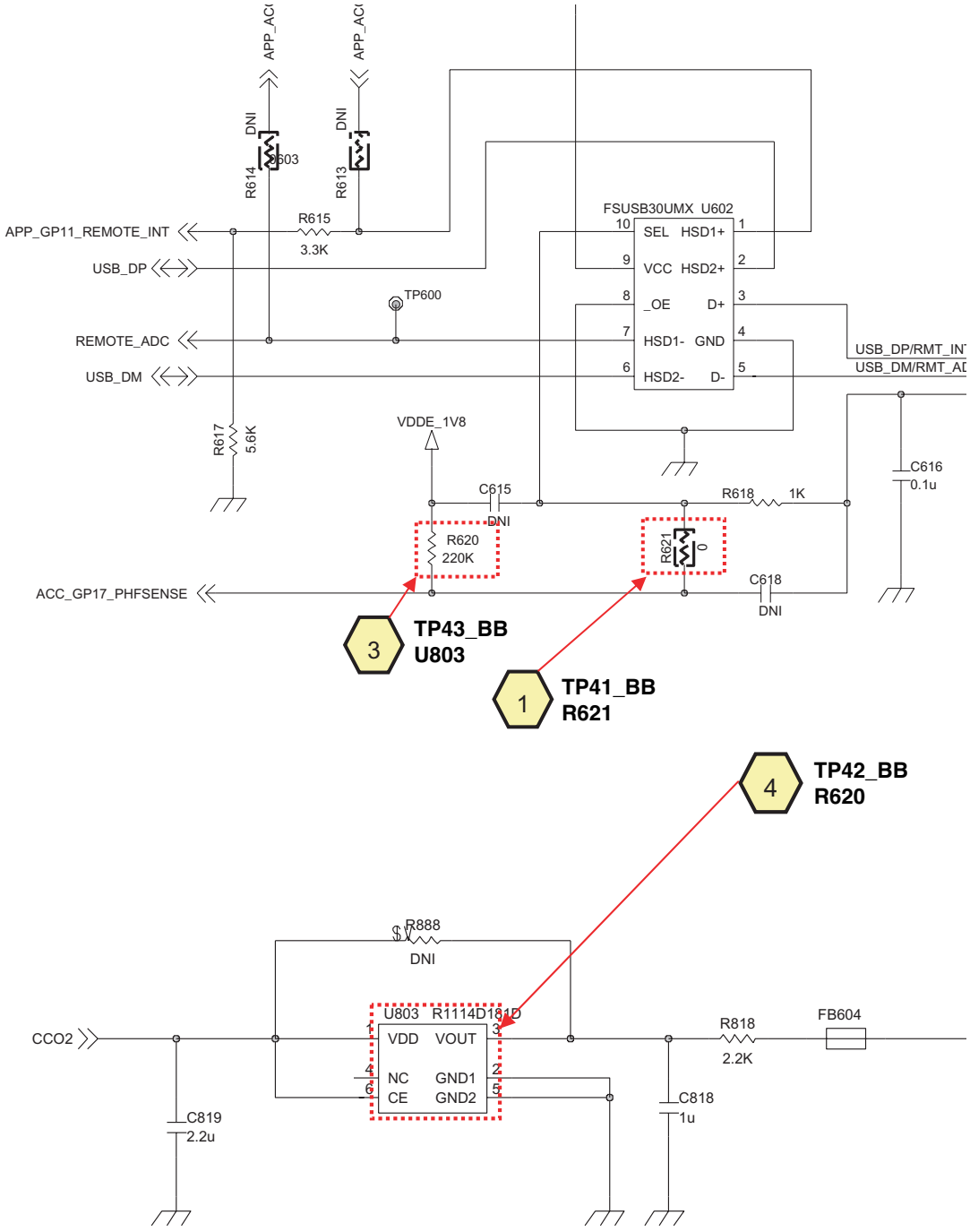

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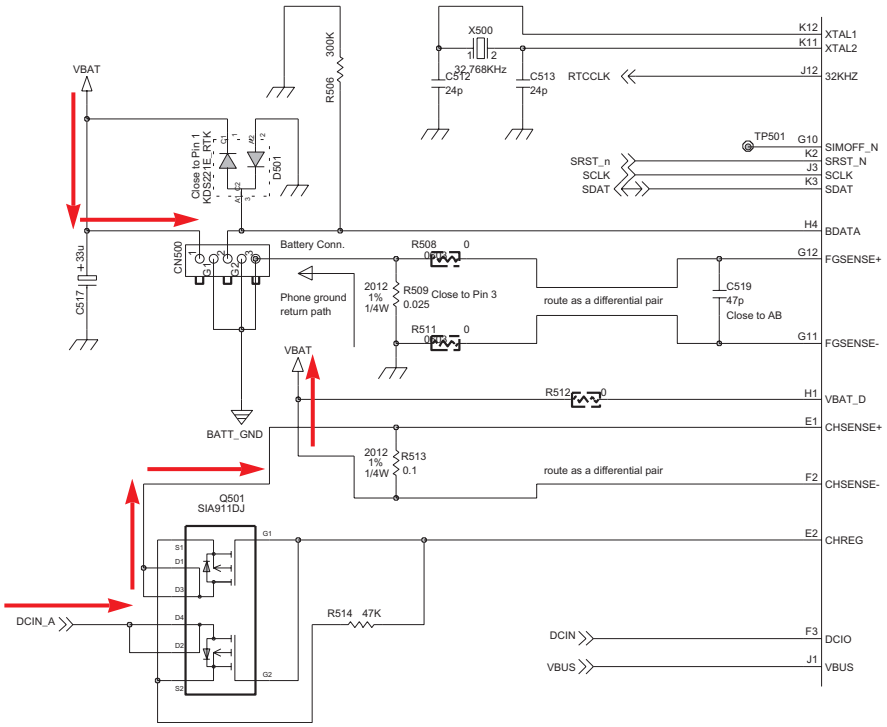
4.12 Charger Trouble Shooting



Main Battery Charging Path

- Charging Procedure
  - Connecting TA and Charger Detection
  - Control the charging current by AB3000
  - Charging current flows into the battery
- Check Point
  - Connection of TA
  - Charging current path: ⟶
  - Battery
- Trouble shooting setup
  - Connect TA and battery to the phone
- Trouble Shooting Procedure
  - Check the charger connecter
  - Check the Charging current Path: Red Line(⟶)
  - Check the battery

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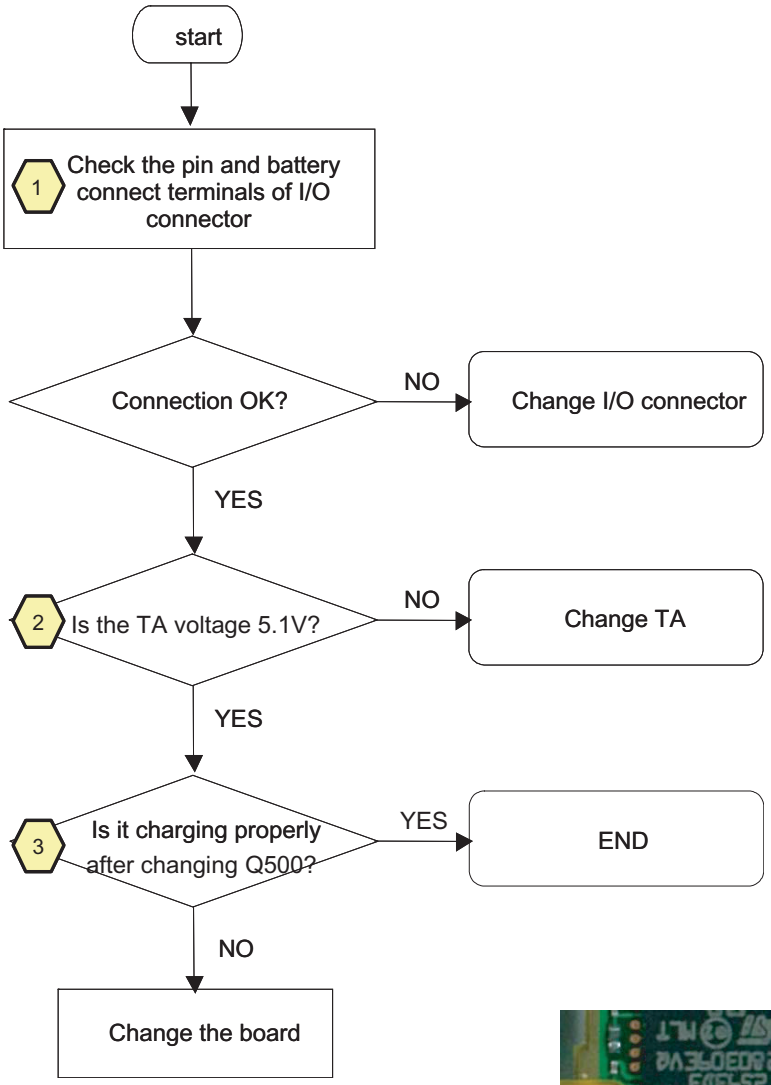
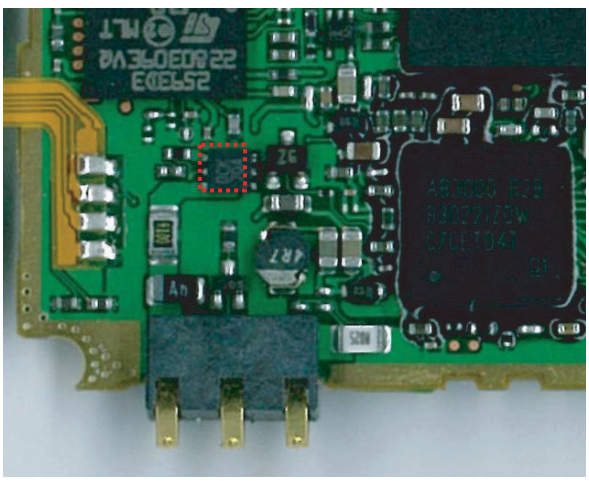


Trouble Shooting - Charging



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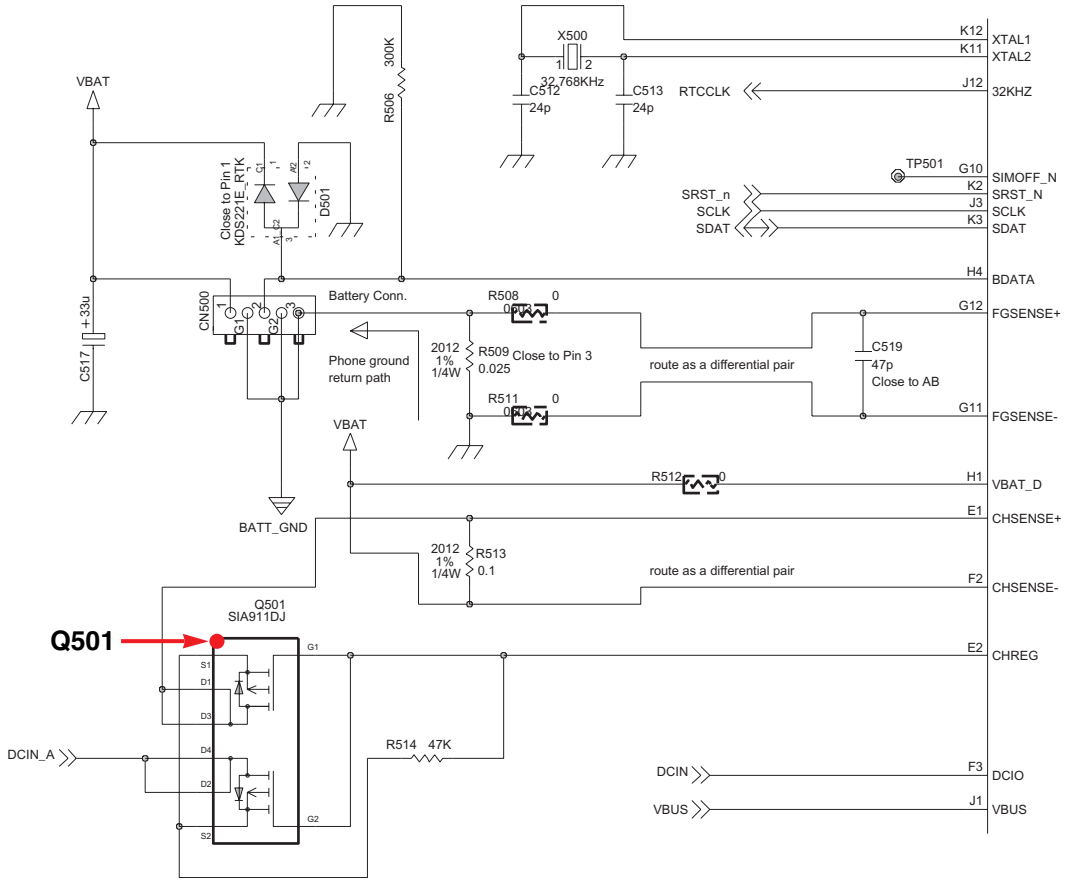

Main Battery Charging Path

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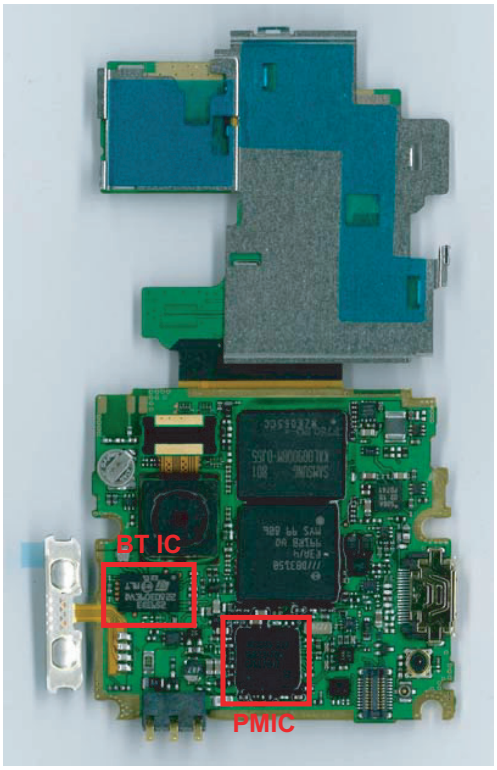
4.13 Checking Bluetooth Block



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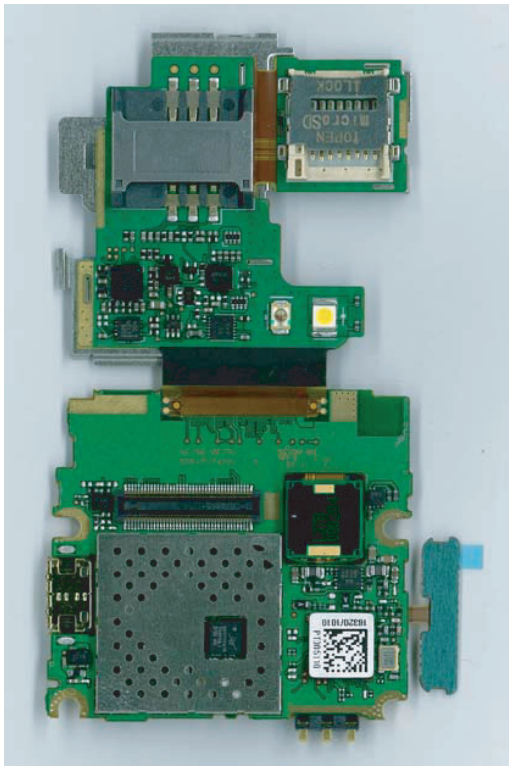

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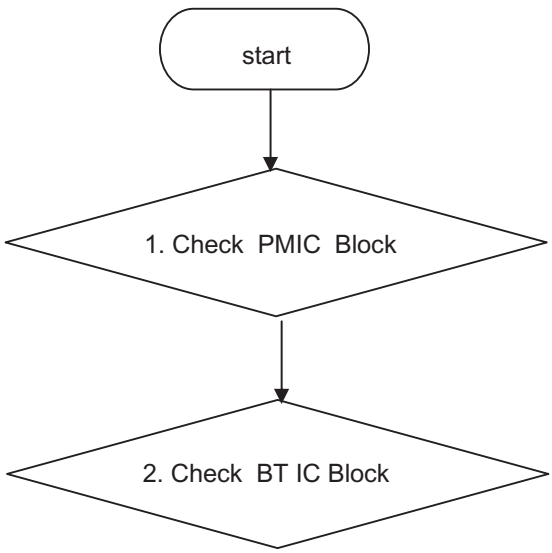

** BT - Bluetooth

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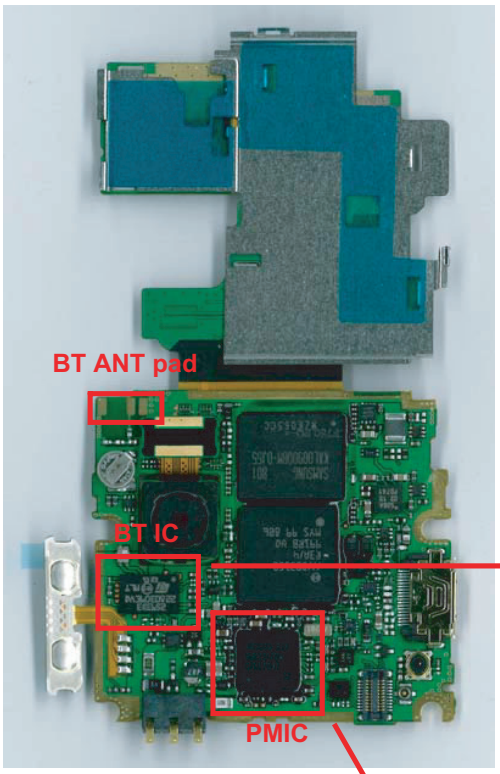
4. TROUBLE SHOOTING



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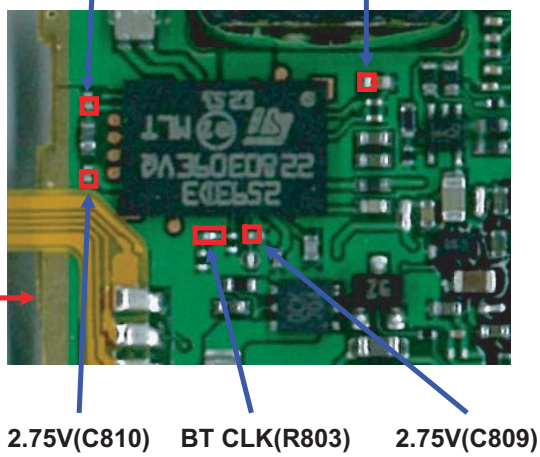

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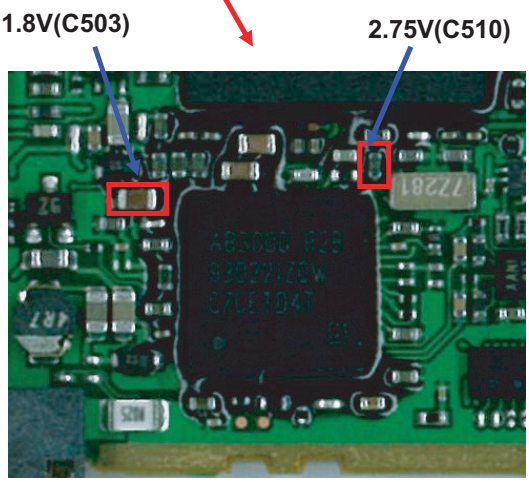

<PMIC Block>

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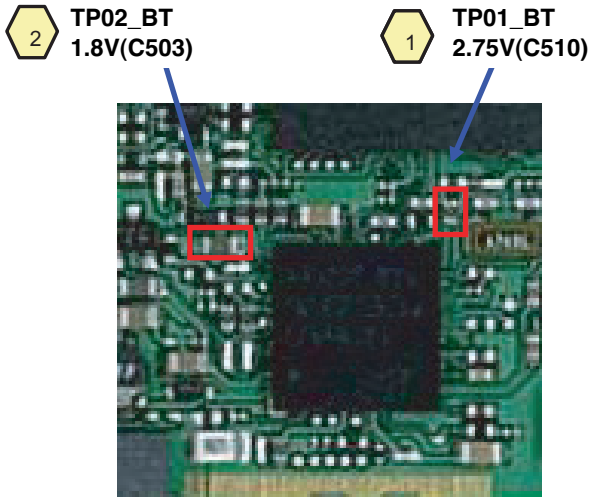
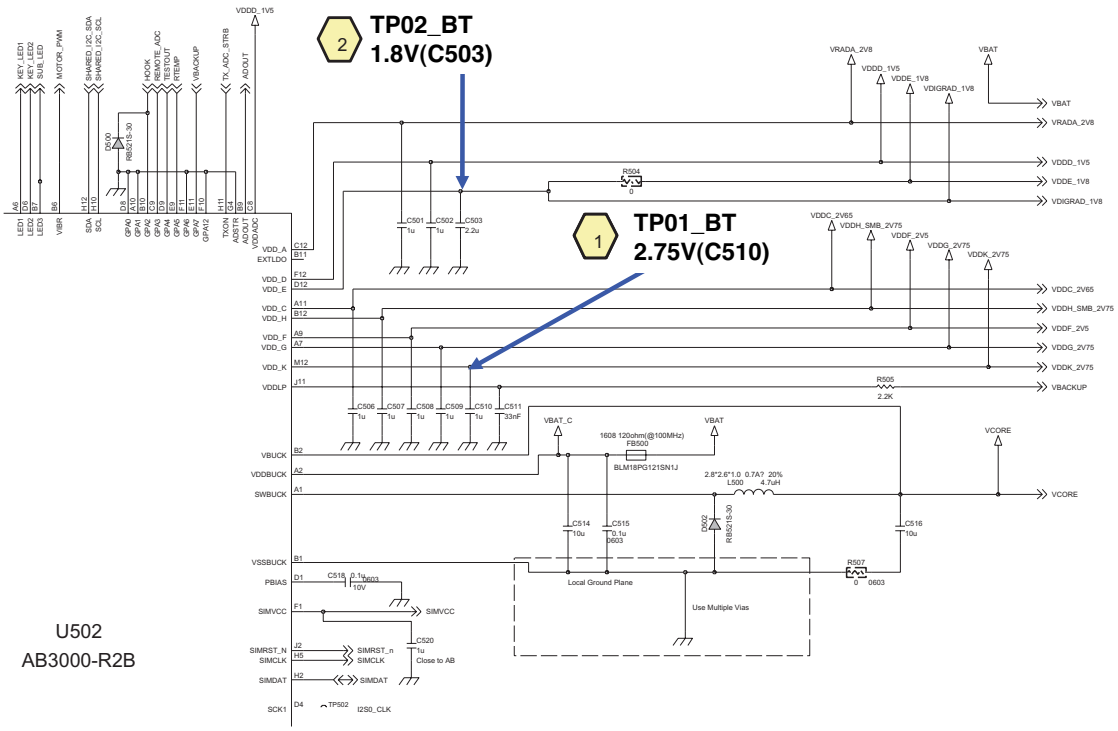
4.13.1 Checking BT IC Block





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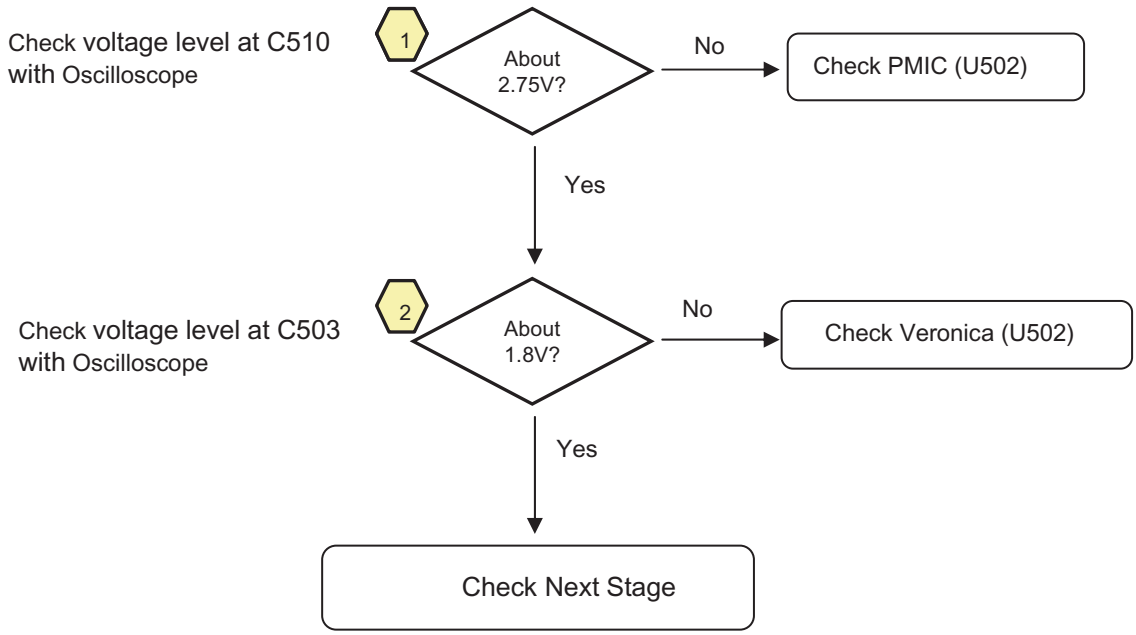

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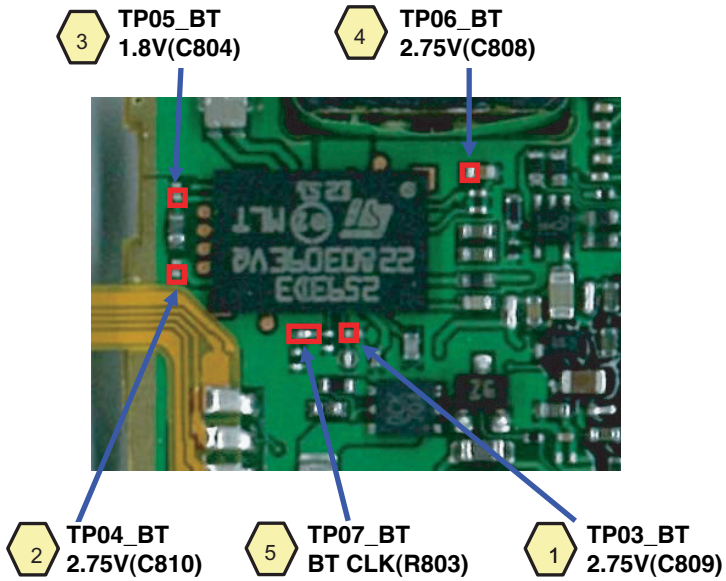
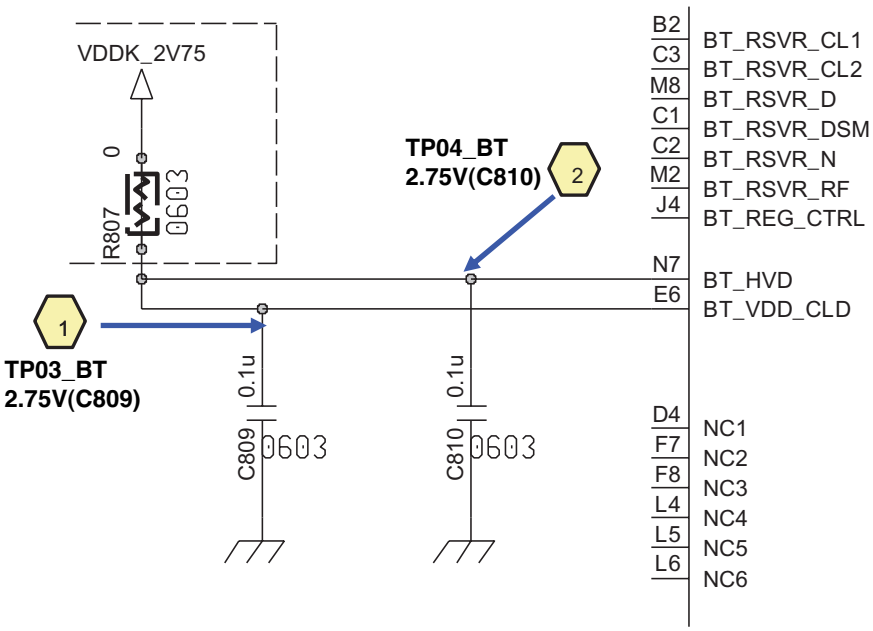
4.13.2 Checking BT IC Block





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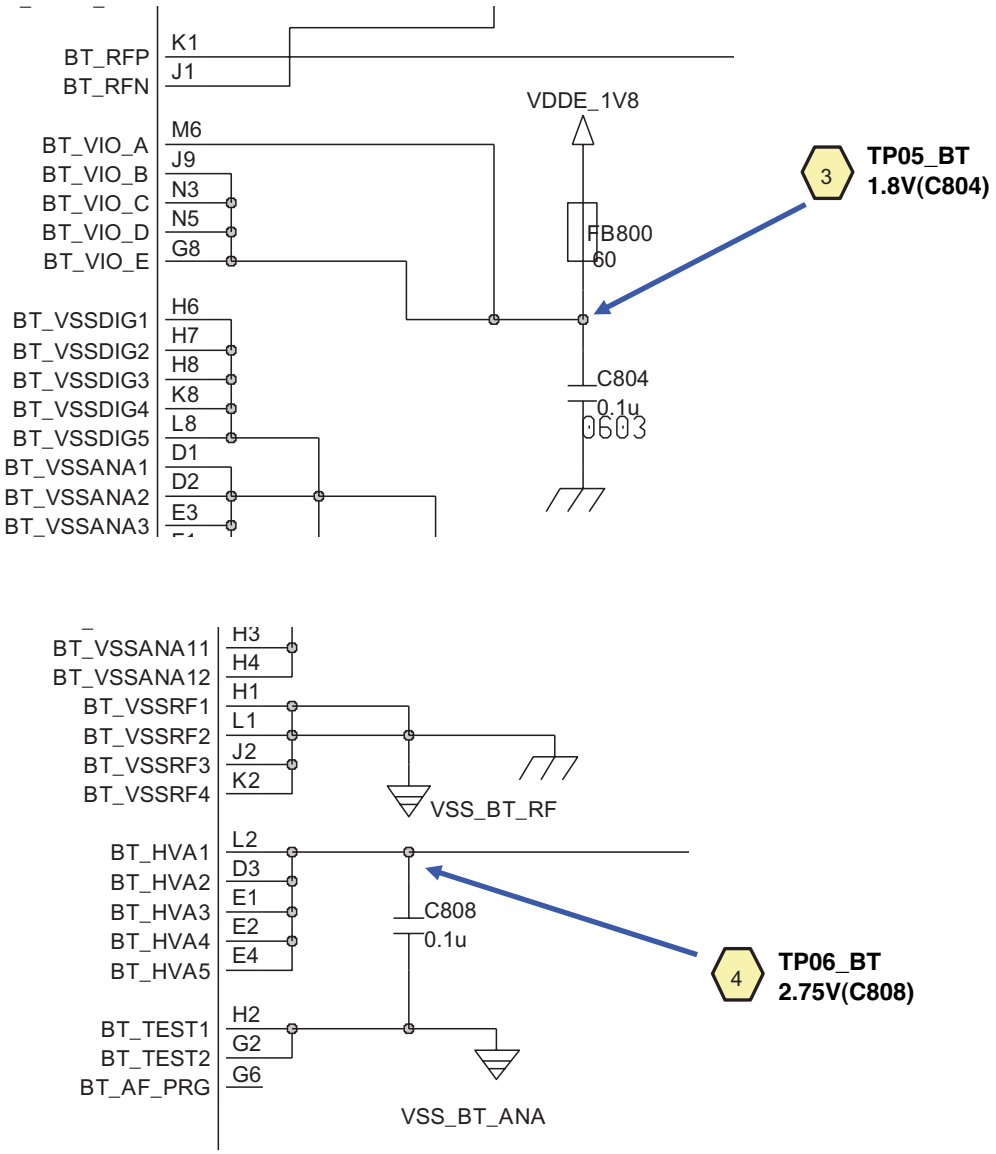

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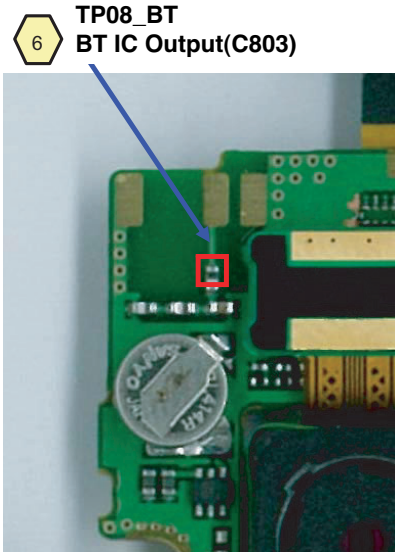
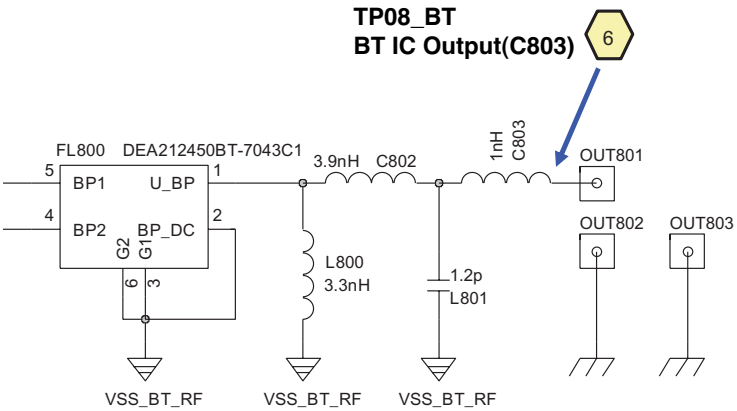
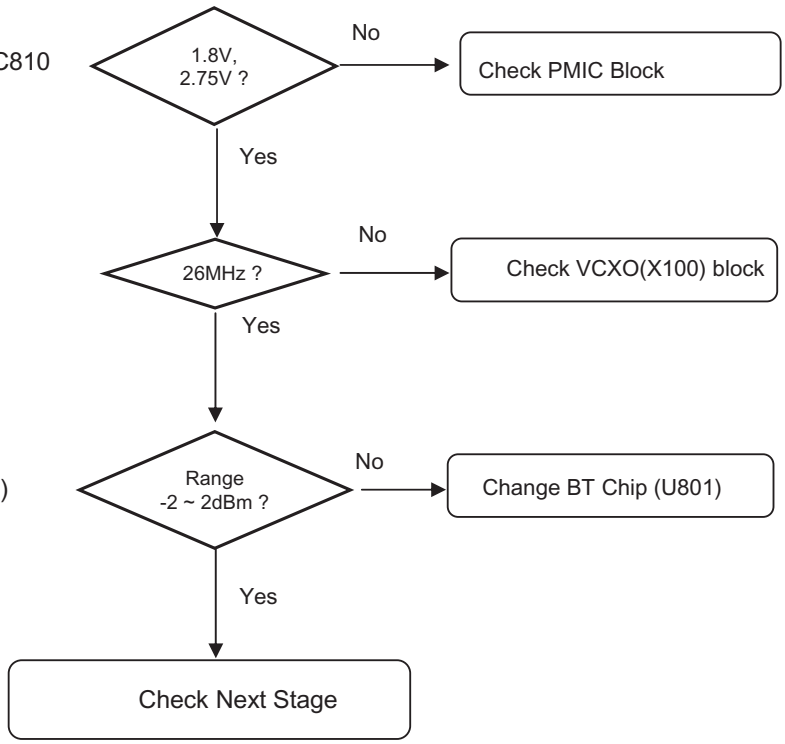




1 2 3 4 Check voltage level at C804, C808, C809 and C810 with Oscilloscope

5 Check frequency at BT CLK (R803) with Oscilloscope

6 Check Power level at BT IC Output (C803) with Spectrum Analyzer



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4.14 RF Component

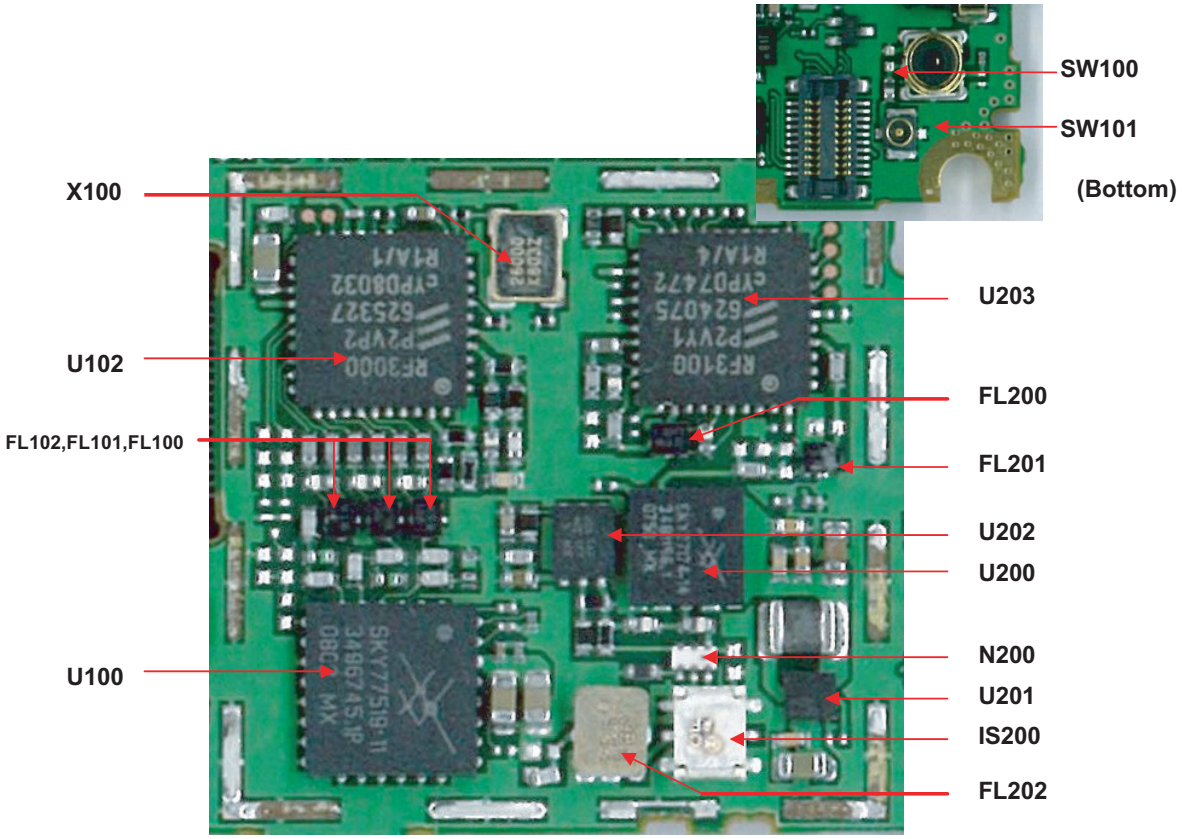

Figure 4-1. RF component

Reference	Description	Reference	Description
X100	26MHz Crystal	U200	WCDMA PA
U100	GSM900/DCS/PCS/EDGE PA + Ant. SW	U201	WCDMA DC/DC Converter
U102	GSM / EDGE Transceiver(RF3000)	U202	WCDMA Power Detector
FL100	DCS Rx SAW Filter	U203	WCDMA Transceiver(RF3100)
FL101	PCS Rx SAW Filter	N200	WCDMA Power Coupler
FL102	GSM900 Rx SAW Filter	IS200	WCDMA Isolator
SW100	RF Test Connector	FL200	WCDMA Rx SAW Filter
SW101	Antenna Connector	FL201	WCDMA Tx SAW Filter
		FL202	WCDMA Duplexer

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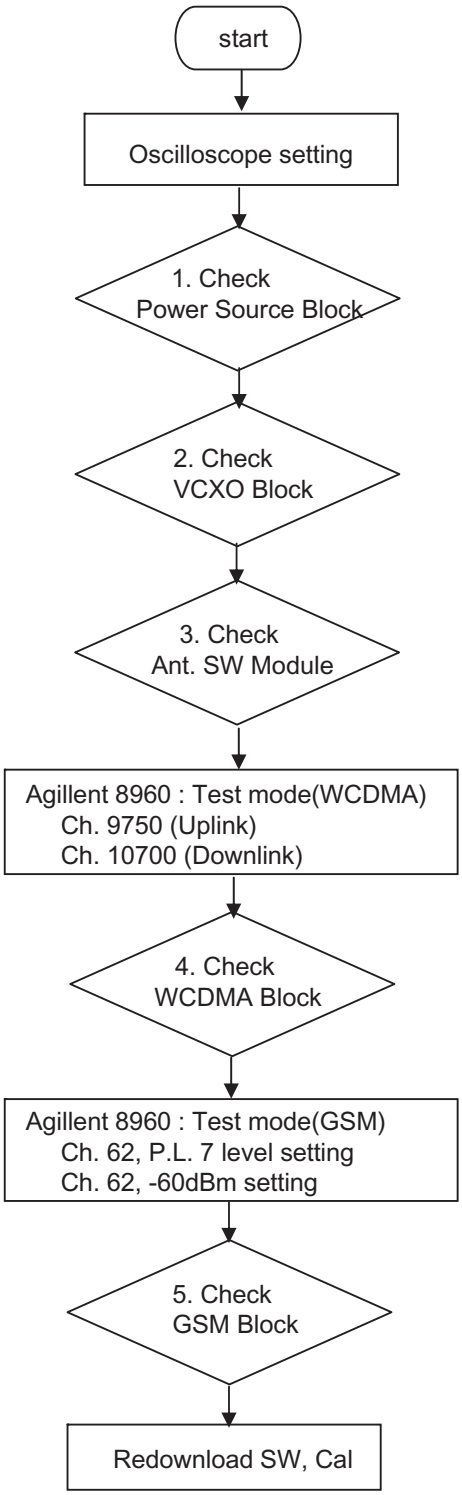
4.15 Procedure to check



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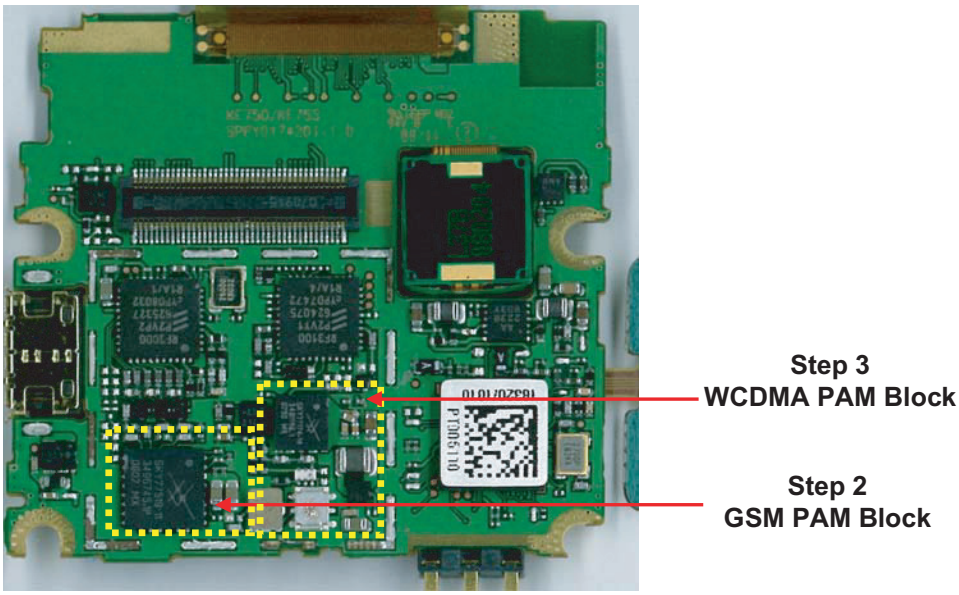
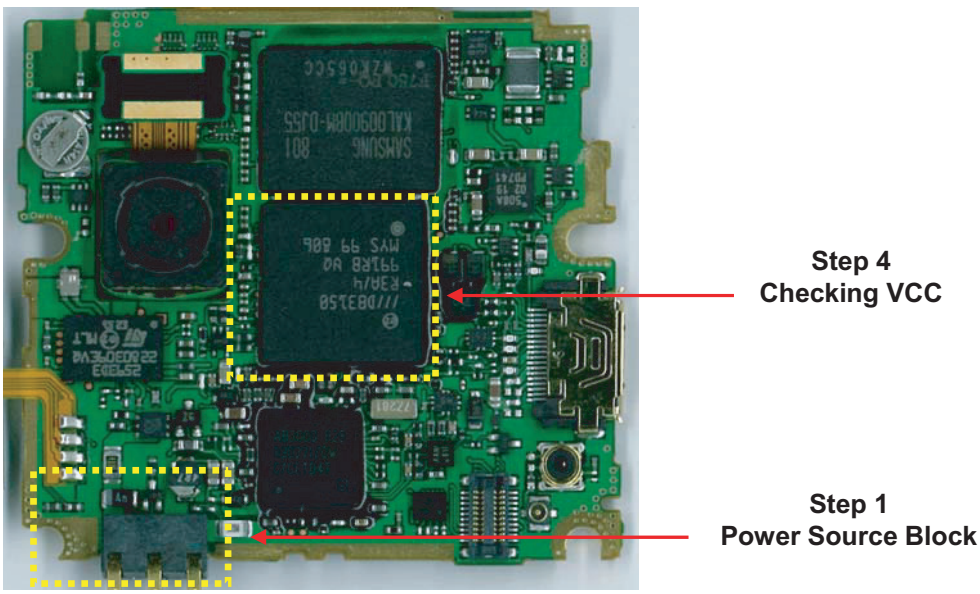
4.16 Checking Common Power Source Block



(Top)



(Bottom)

Figure 4-2. Common Source Block

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4.16.1 Step 1

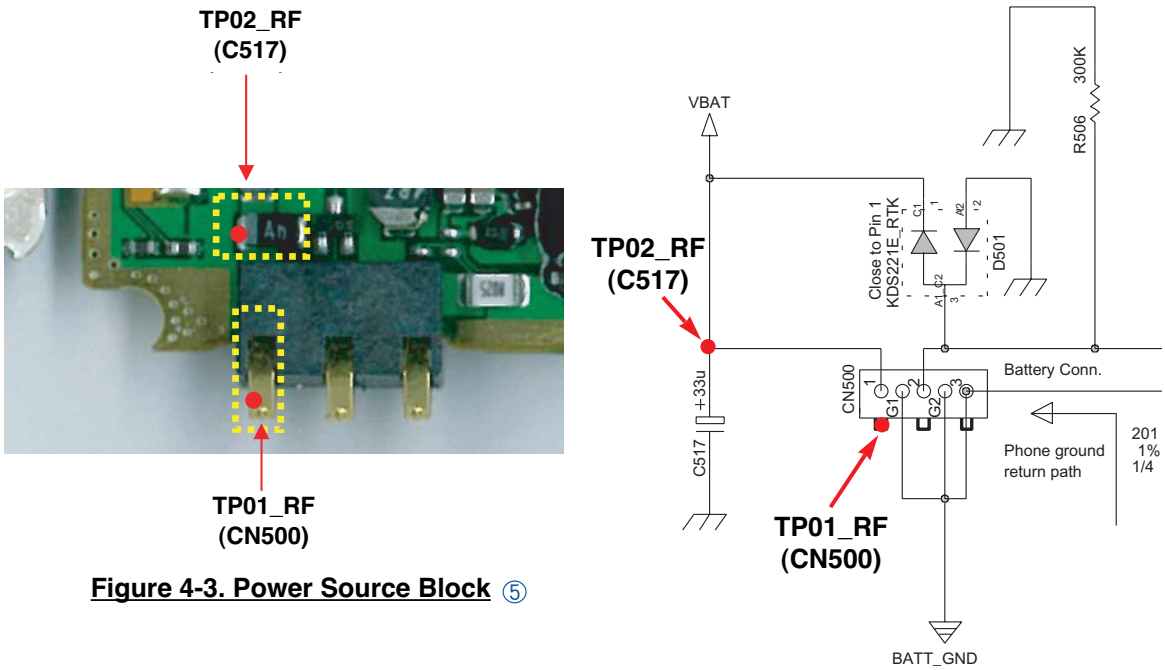
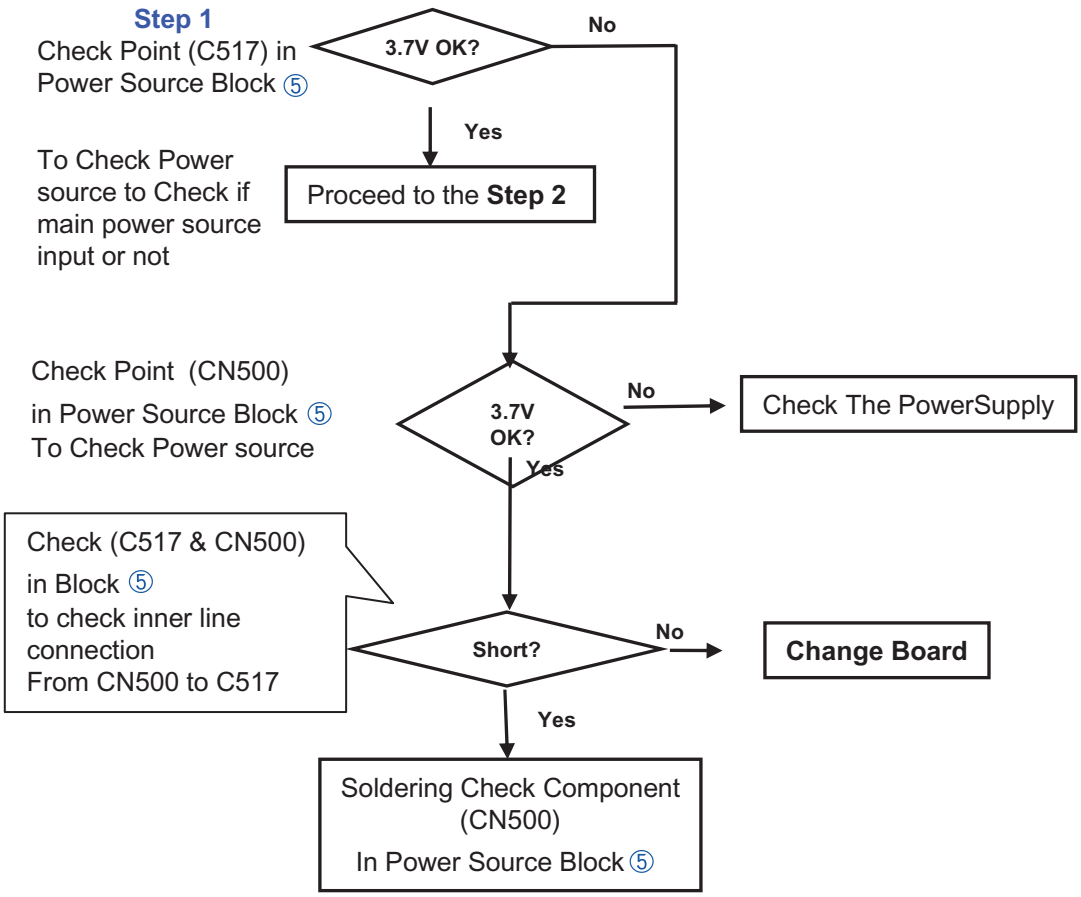


Figure 4-3. Power Source Block ⑤



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4.16.2 Step 2

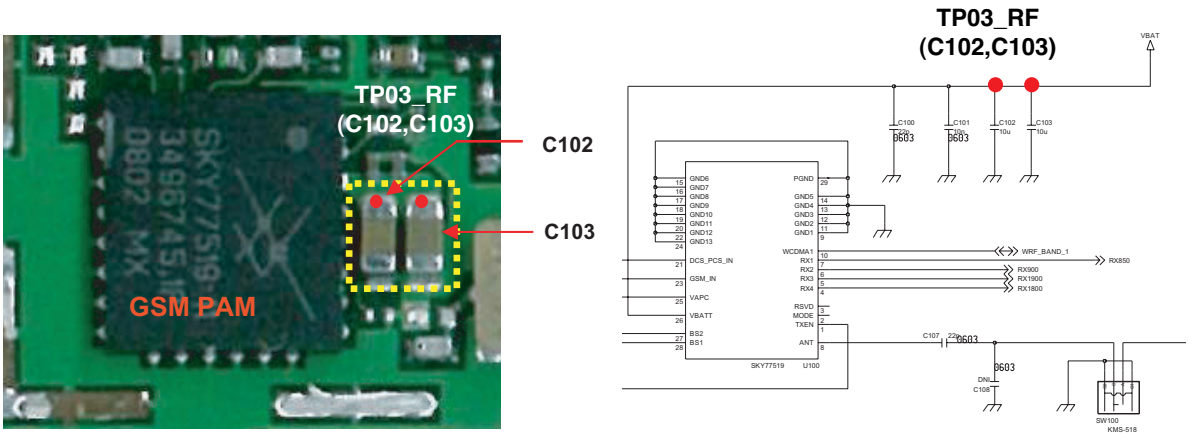
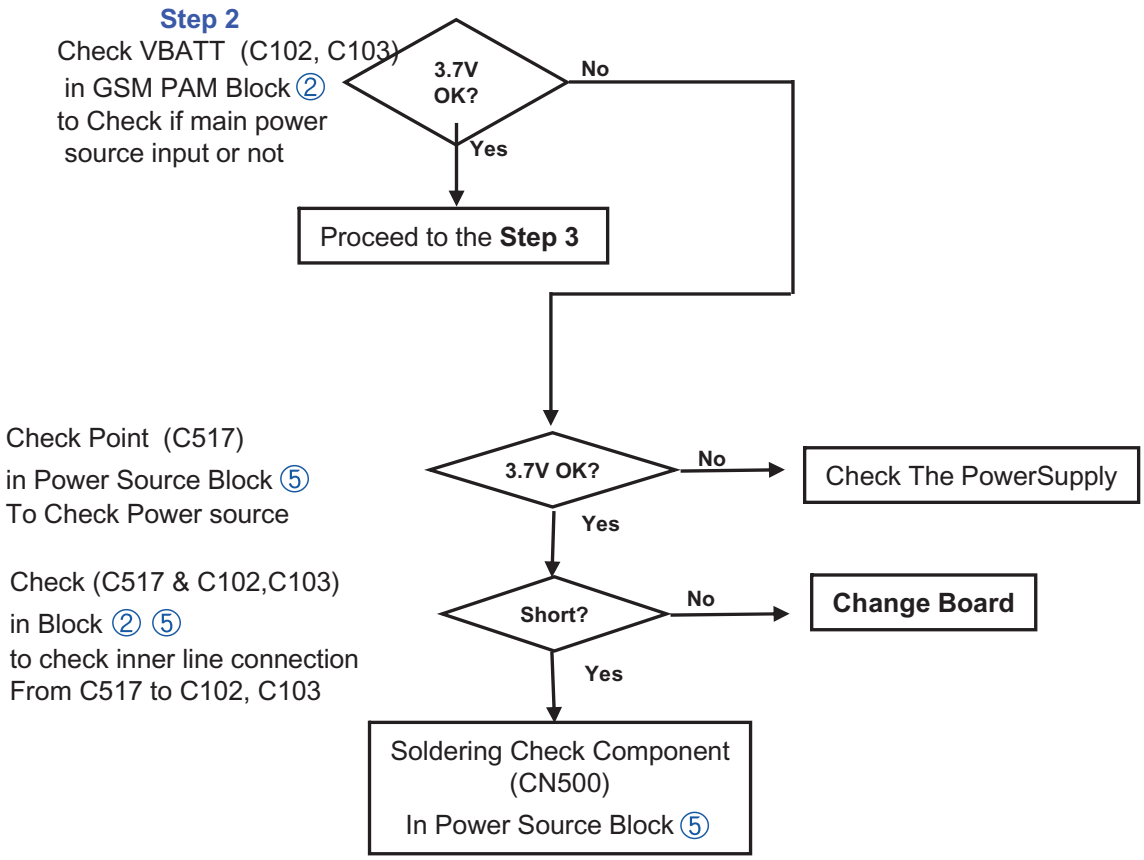


Figure 4-4. Step 2 : GSM PAM Block ②



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4.16.3 Step 3

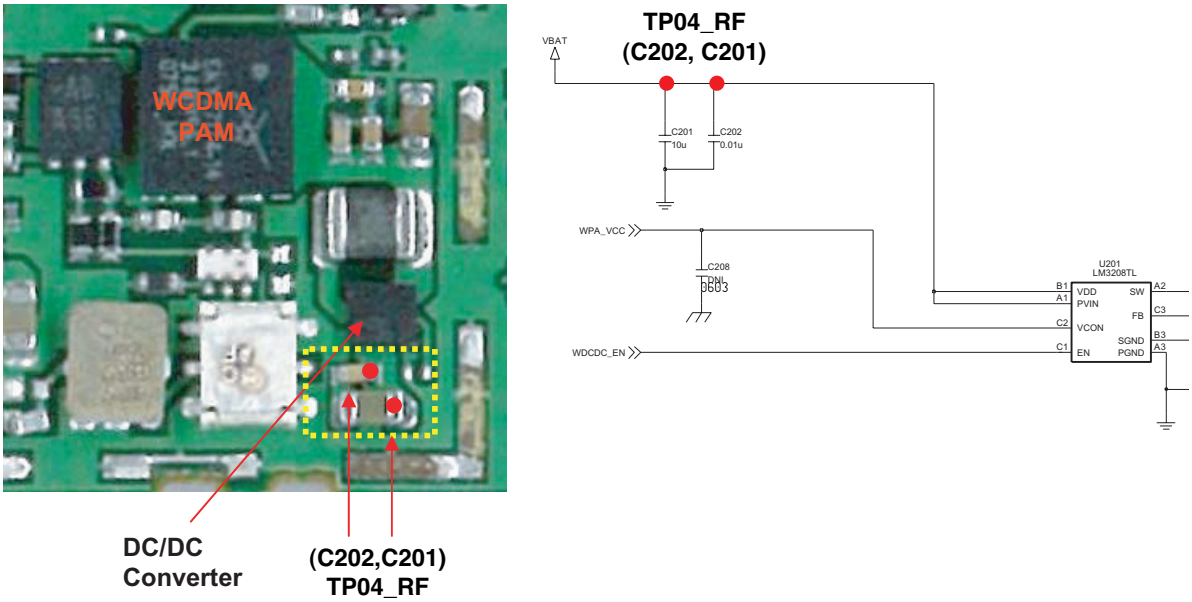
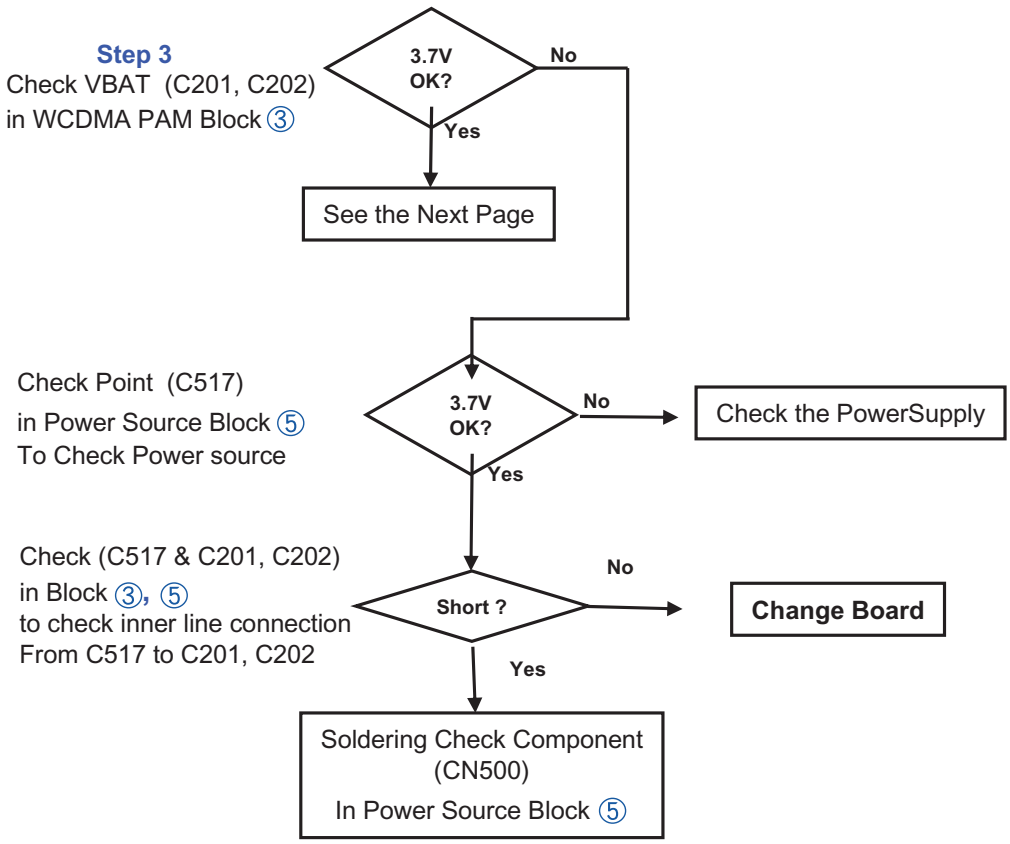


Figure 4-7. Step 3 :WCDMA PAM Block ③



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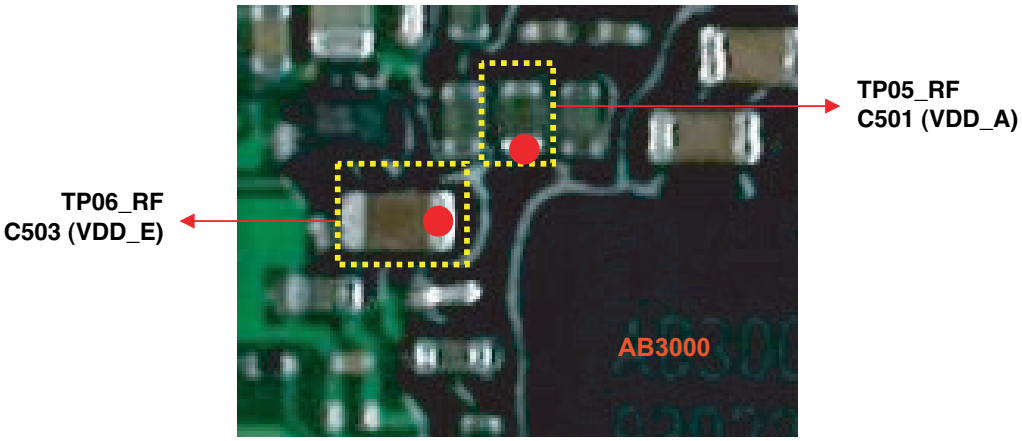
4.16.4 Step 4: Checking VCC



(Bottom)

Figure 4-5-1. Power for Radio ASIC ④

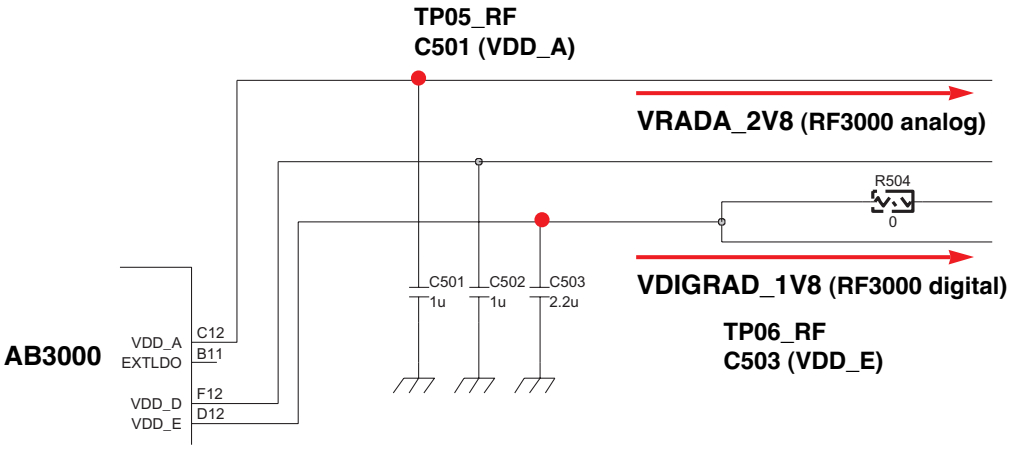
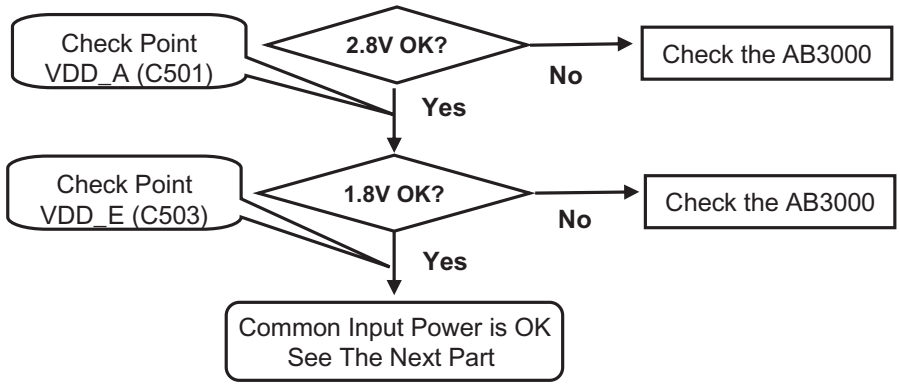


Figure 4-5-2. Schematic (Power)



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4.17 Checking VCXO Block

The reference frequency (26MHz) from U102 (GSM Transceiver RF3000) is also used in WCDMA TX part and BB part. Therefore, 3 test points in the following figure should be checked.

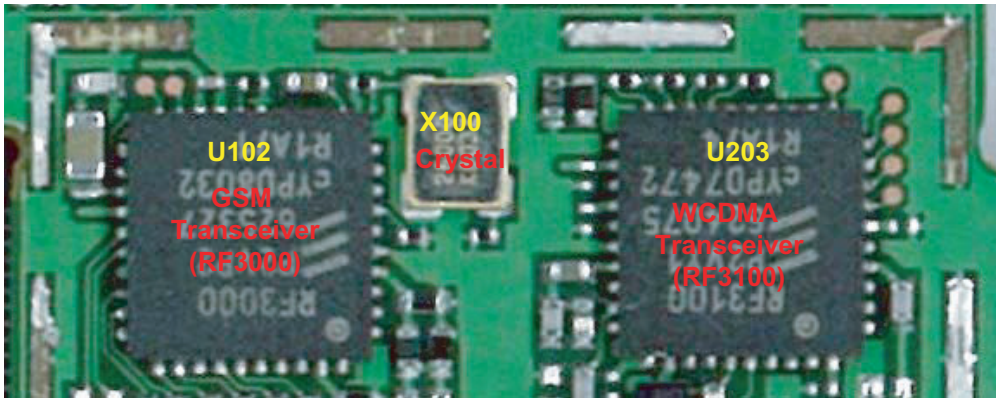

Figure 4-6. VCXO block

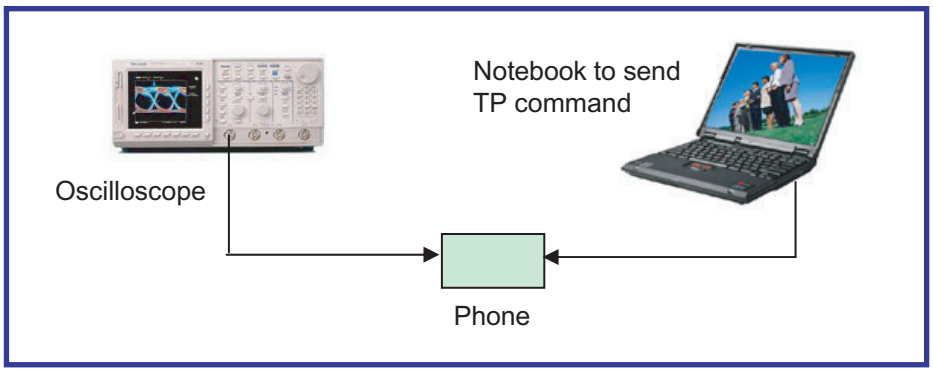

Figure 4-7. Connection for Checking VCXO Block

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Check 1. Crystal and RF3000(GSM Transceiver) part

If you already check this crystal part, you can skip check 1

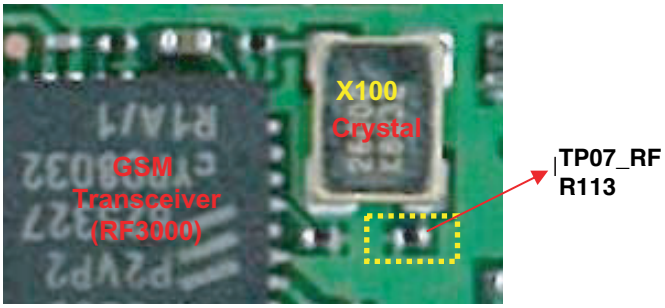

Figure 4-8-1. Test Point (Crystal Part)

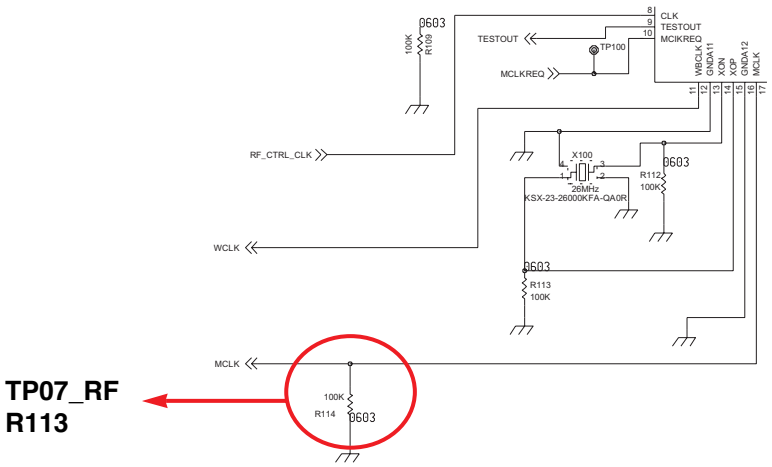

Figure 4-8-2. Schematic (Crystal Part)

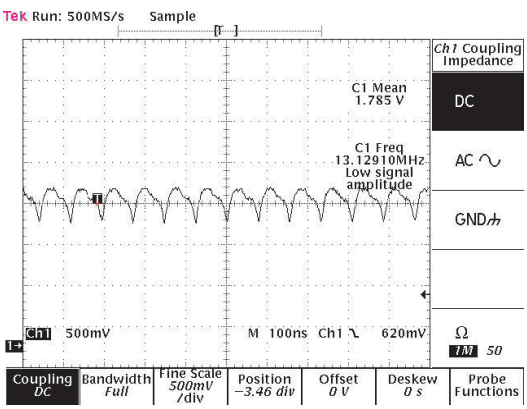

Figure 4-9. 26MHz at R113

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Check 2. 26MHz at WCDMA TX part

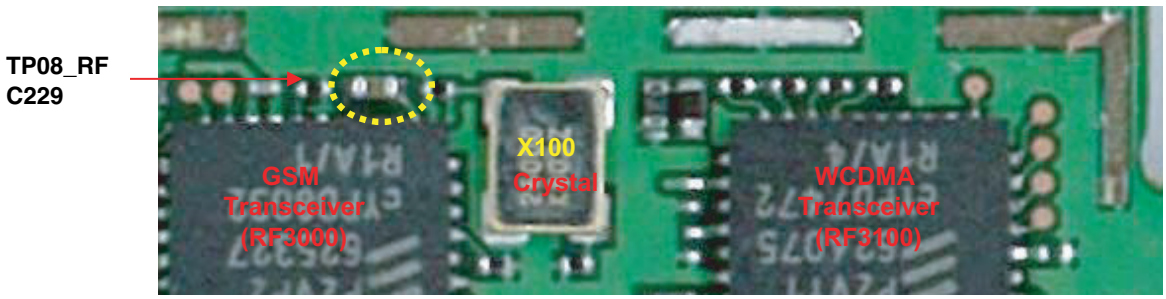

Figure 4-10-1. Test point (26MHz at TX part)

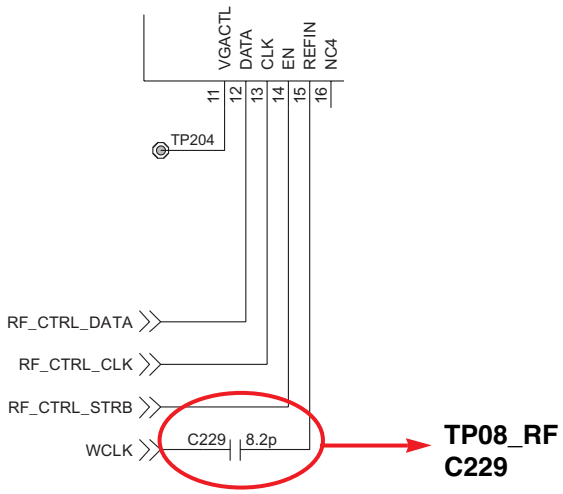

Figure 4-10-2. Schematic (26MHz at TX part)

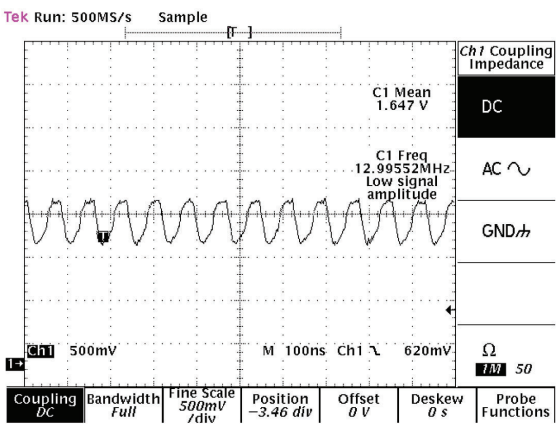

Figure 4-11. 26MHz at C229

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Check 3. 26MHz at BB part

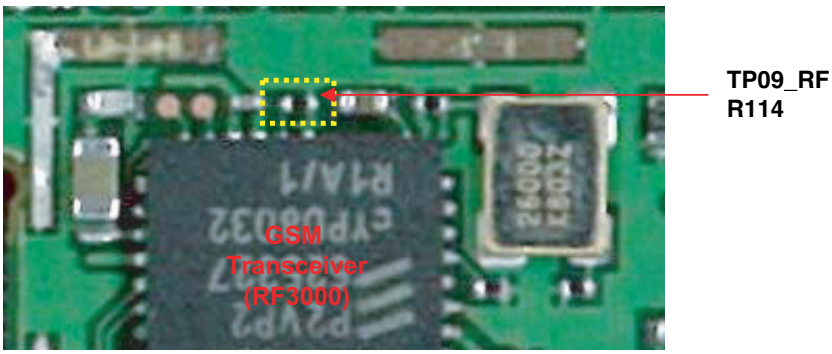

Figure 4-12-1. Test point (26MHz at BB part)

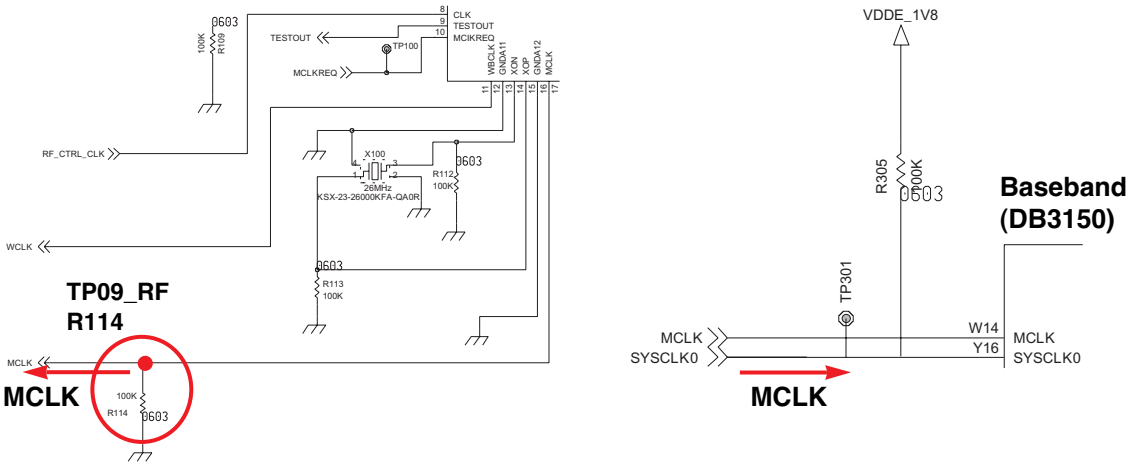

Figure 4-12-2. Schematic (26MHz at BB Part)

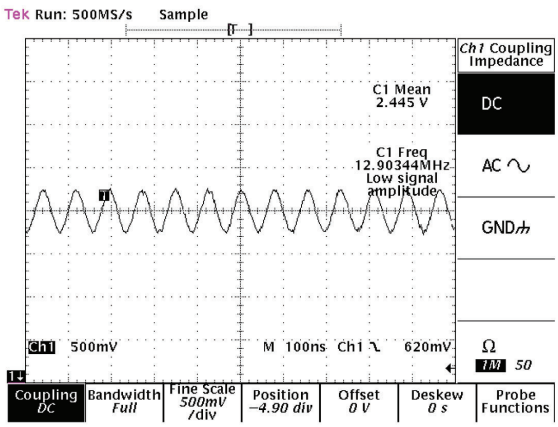

Figure 4-13. 26MHz at R114

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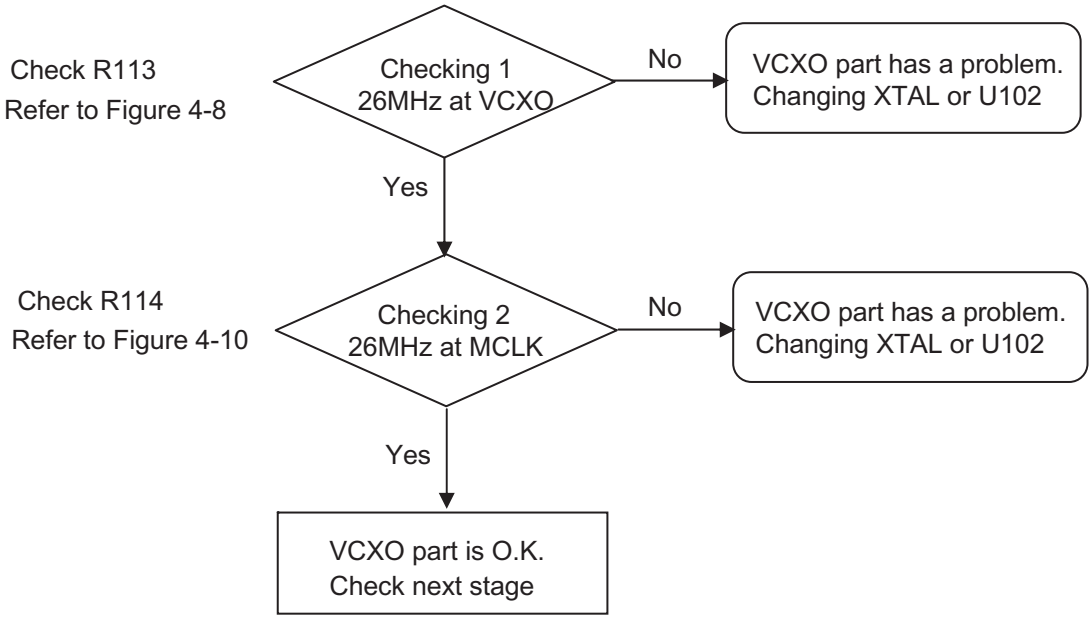

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4.18 Checking Front End Module Block

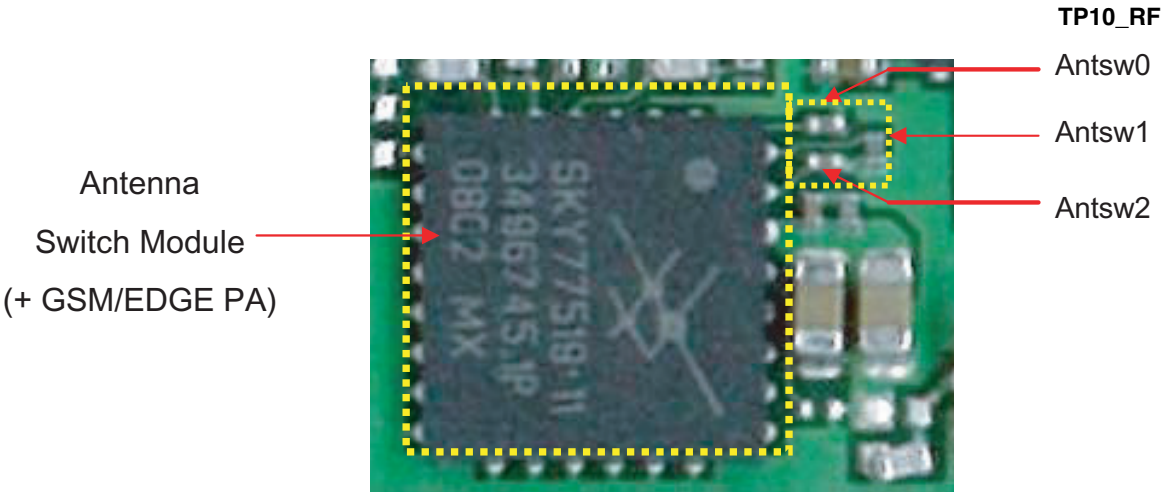
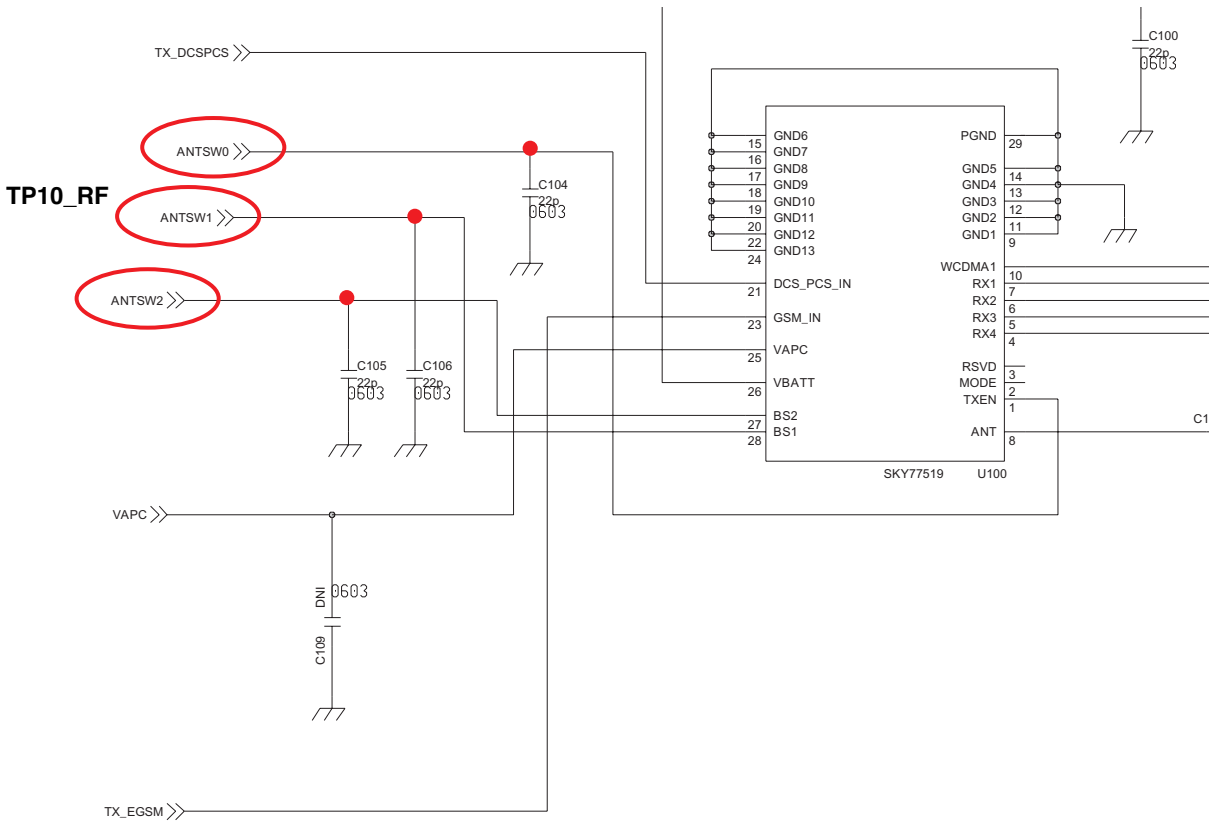


Figure 4-12. Front End Module Block (Bottom and Top)



Antenna Switch Module (+ GSM/EDGE PA)

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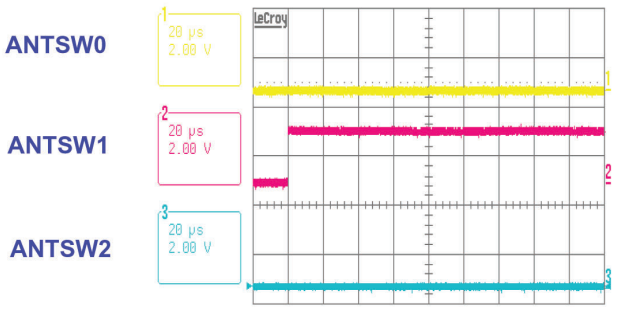
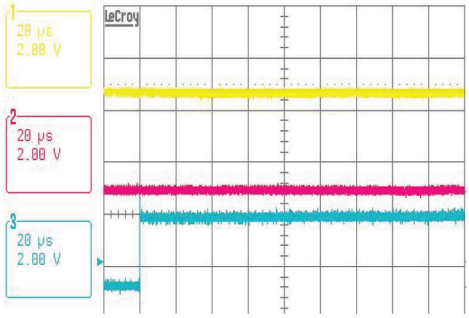
4.19 Checking Front End Module Block input logic

4.19.1 Mode Logic by TP Command

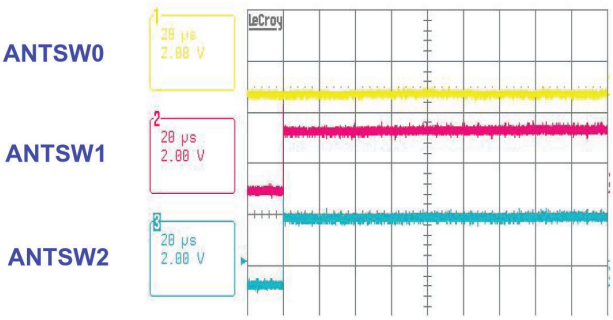
WCDMA



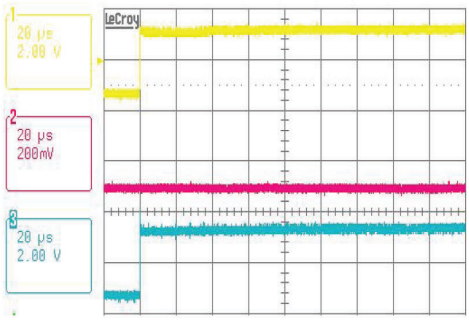
EGSM Tx



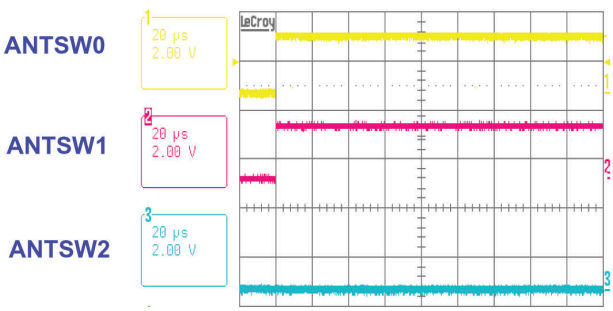
DCS/PCS Tx



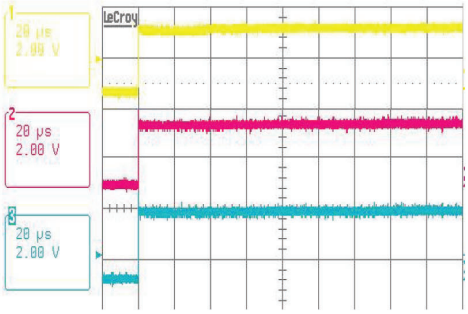
EGSM RX



DCS Rx



PCS Rx



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Mode	Antsw0	Antsw1	Antsw2
EGSM Tx	L	L	H
DCS Tx	L	H	H
PCS Tx	L	H	H
EGSM Rx	H	L	H
DCS Rx	H	H	L
PCS Rx	H	H	H
WCDMA	L	H	L

Table 4-1. Front End module Logic

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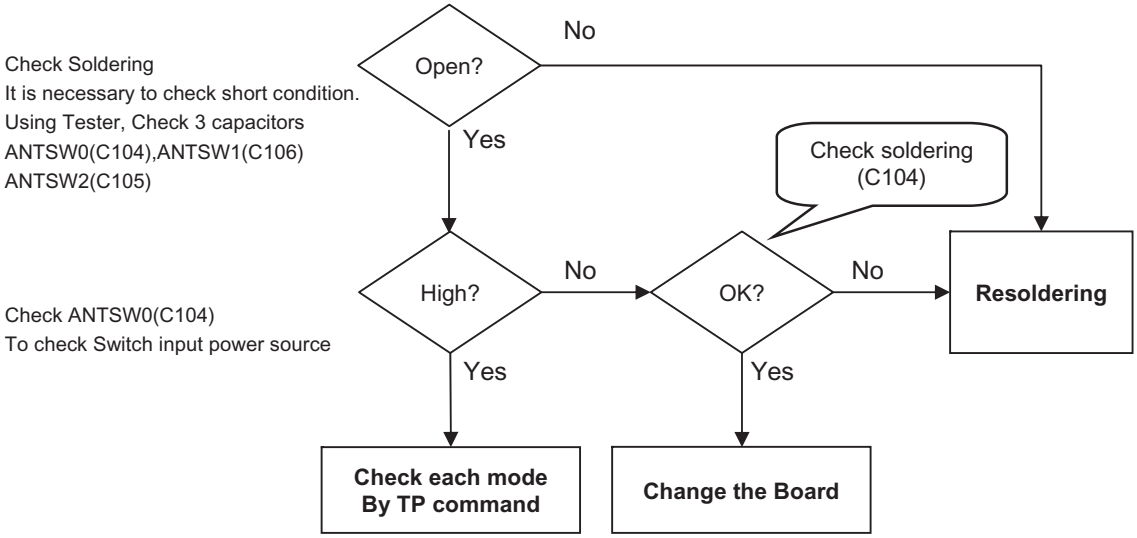
4.19.2 Checking Switch Block power source

※ Before Checking this part, must check common power source(through Veronica) part

TP Command

MODE=0

SWRX=64,2



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4.20 Checking WCDMA Block

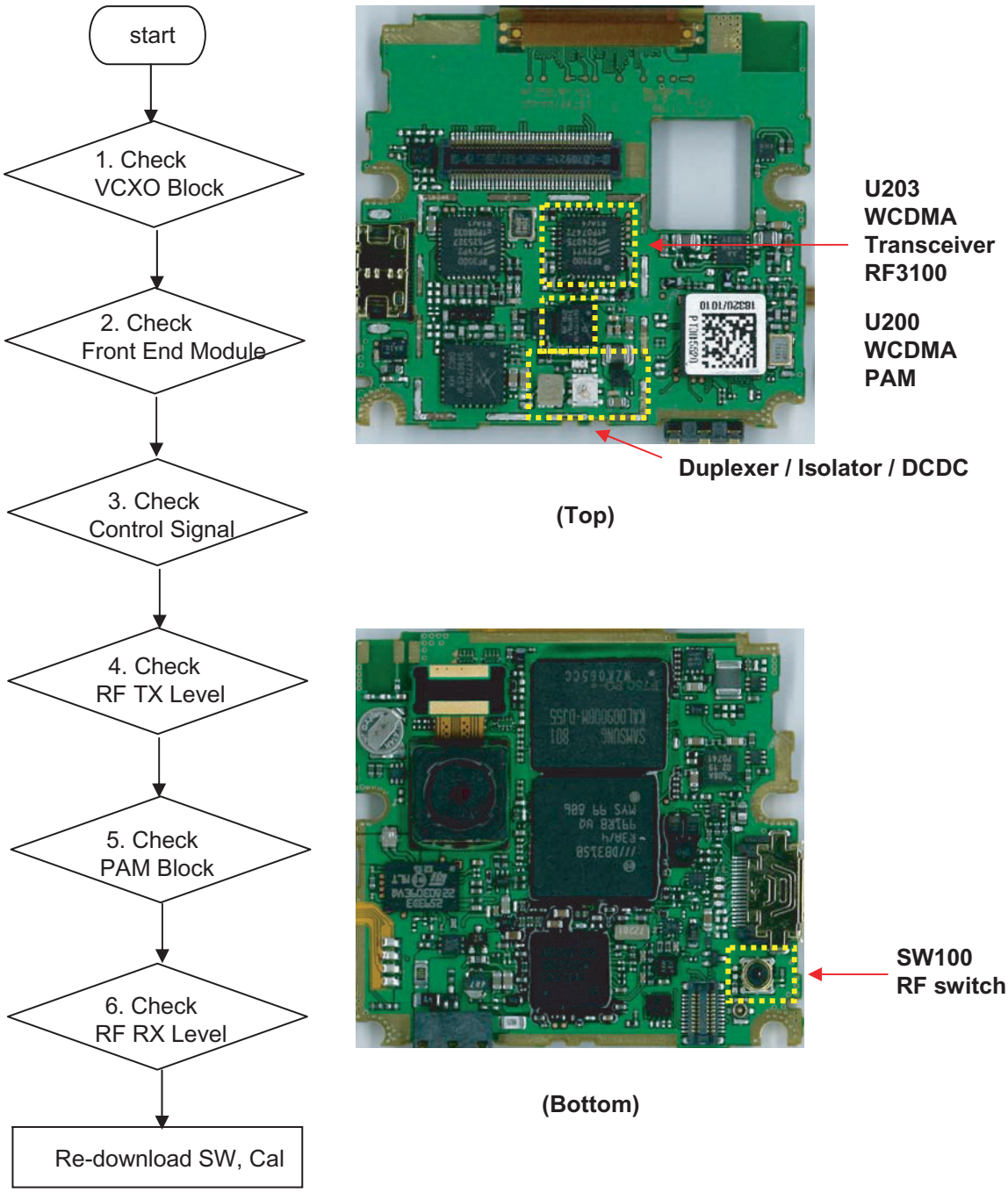

Figure 4-27. WCDMA Block

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4.20.1 Checking VCXO Block

Refer to 4.16

4.20.2 Checking Ant. SW module

Refer to 4.17

4.20.3 Checking Control Signal

First of all, control signal should be checked. (data, clk, strobe)

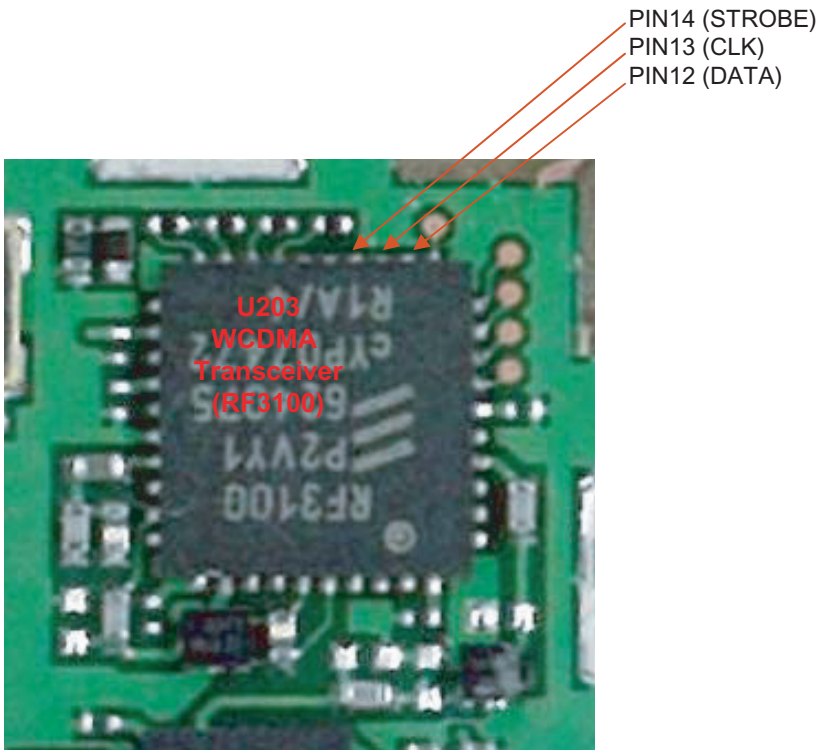

Figure 4-28-1. Test points (Control Signal)

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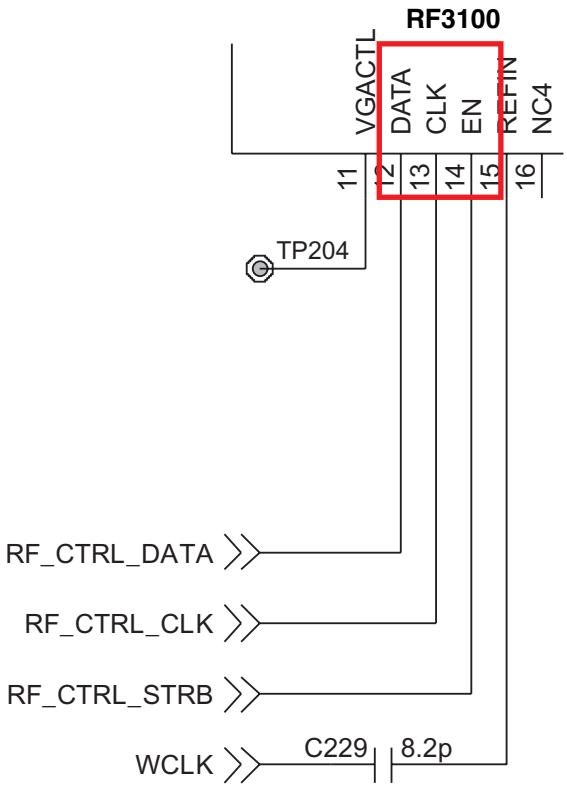

Figure 4-28-2. Schematic (Control Signal)

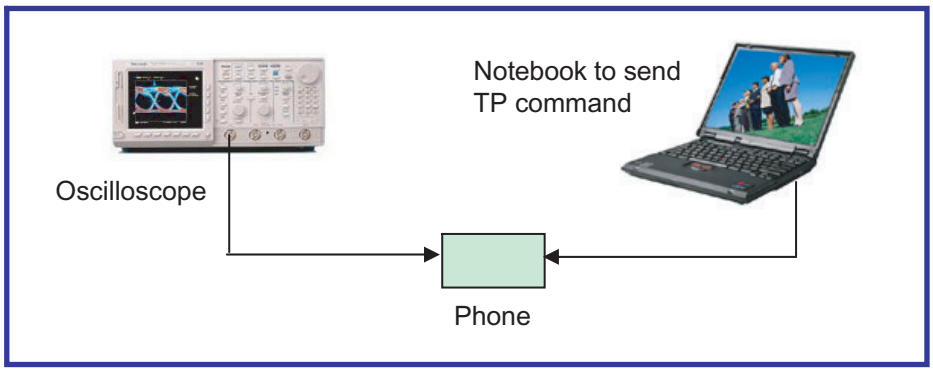

Figure 4-29. Connection for Checking Control Signal

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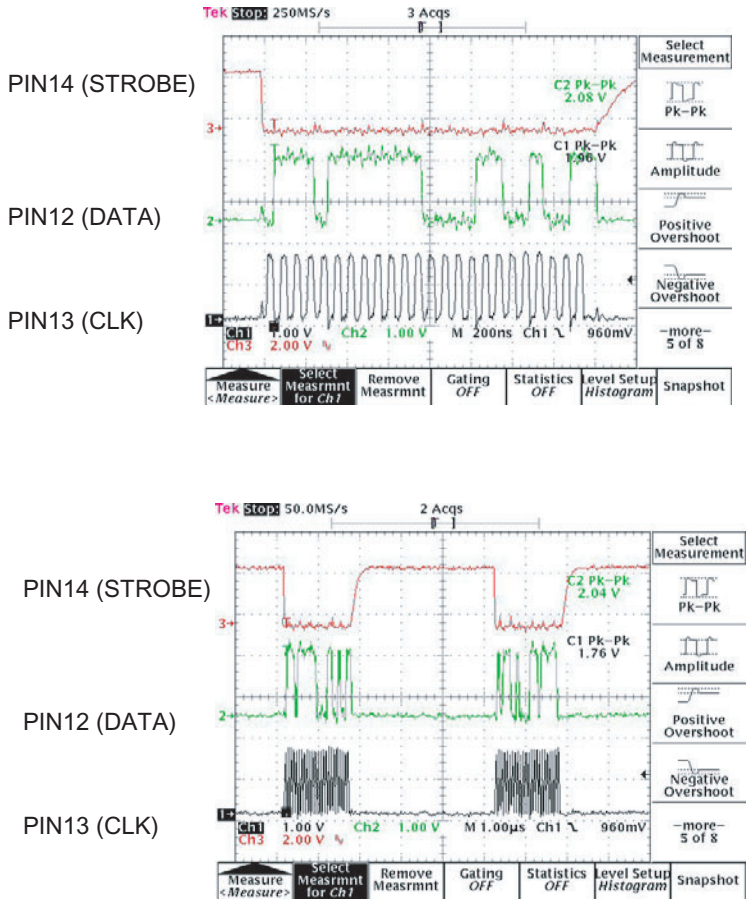
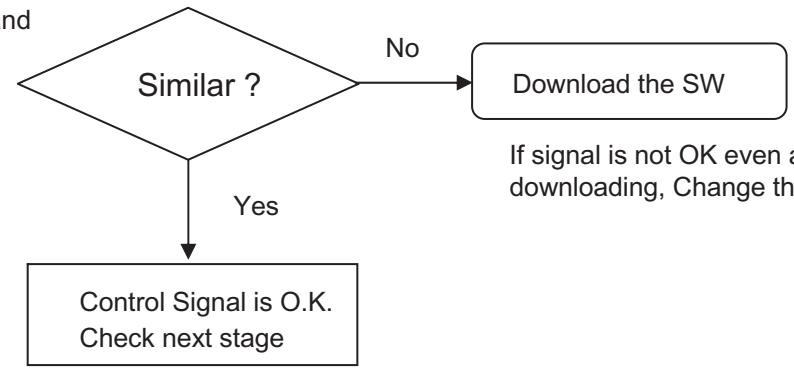


Figure 4-30. Control Signal

TP Command
MODE=4
WTXC=10700, 1,890,903,542,557

Check PIN12,PIN13, and PIN14. Check shape and pk-pk level Refer to Figure 4-30



If signal is not OK even after downloading, Change the U203

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4.20.4 Checking RF TX Level

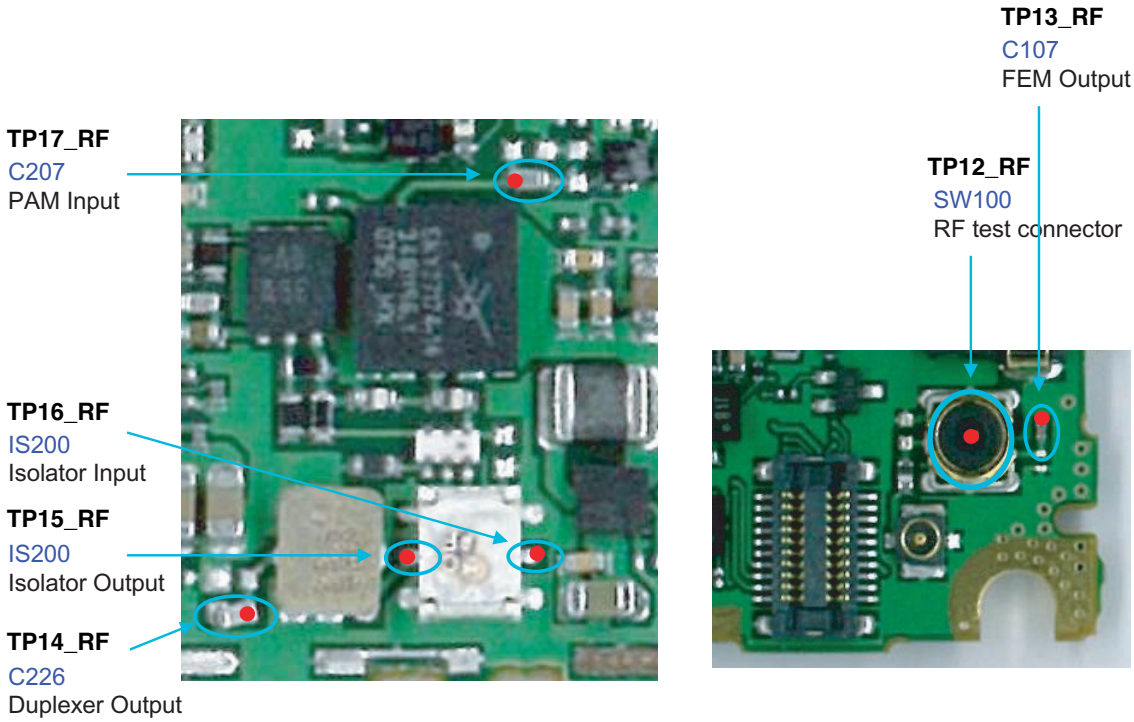

Figure 4-31. Test point (RF TX Level)

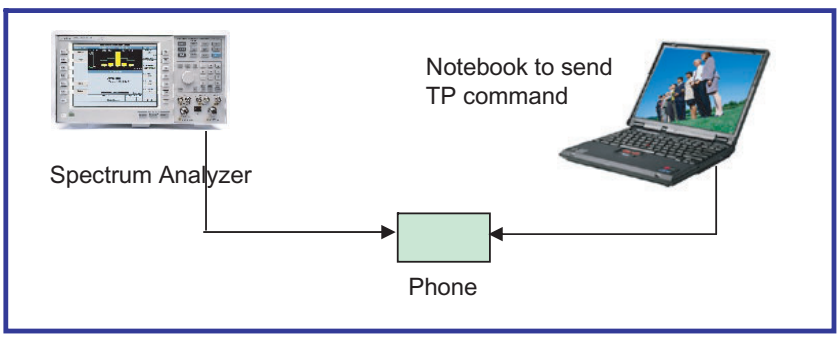

Fig. 4-32 Connection for Checking RF TX Level

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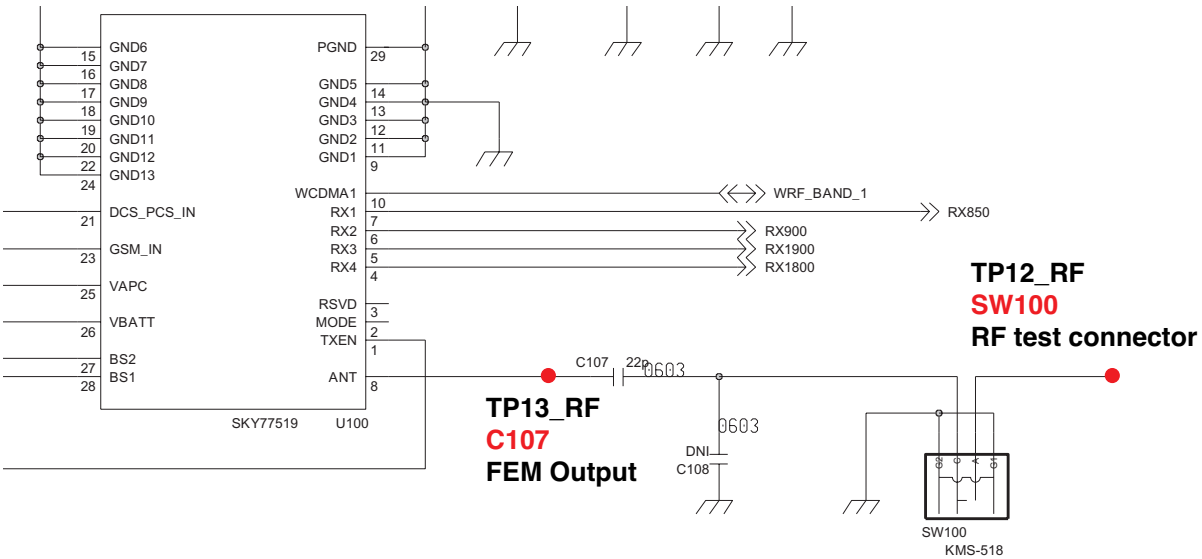

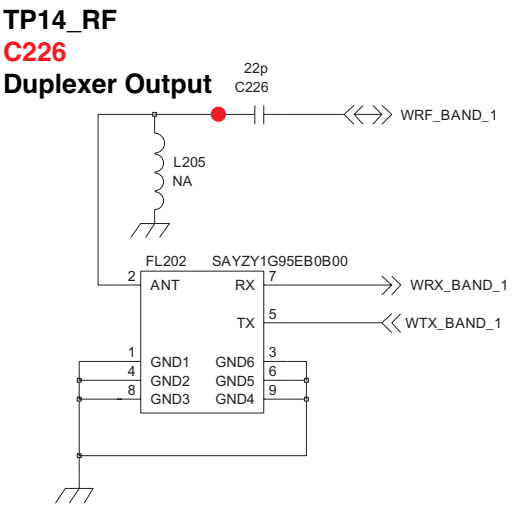

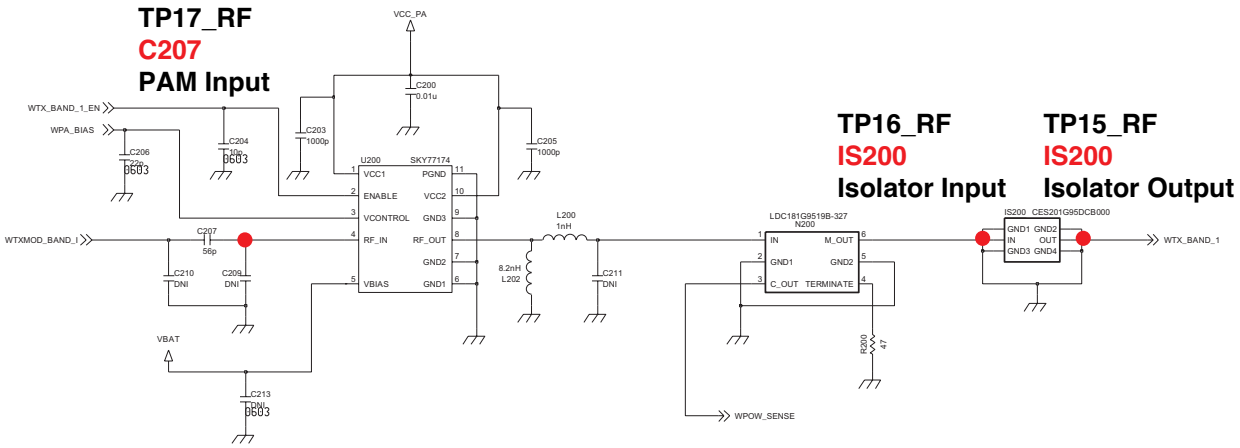

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Fig. 4-33-1 Output Level at RF test connector (SW100)

Fig. 4-33-2 Output Level at FEM Output (C107)

Fig. 4-33-3 Output Level at Duplexer (C226)

Fig. 4-33-4 Output Level at Isolator Output (IS200.2.Out)

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Fig. 4-33-5 Output Level at Isolator Input (IS200.3. In)

Fig. 4-33-6 Output Level at PAM Input (C207)

Fig. 4-33-7 Output Level at RF3100(Ylva) Output (C218)

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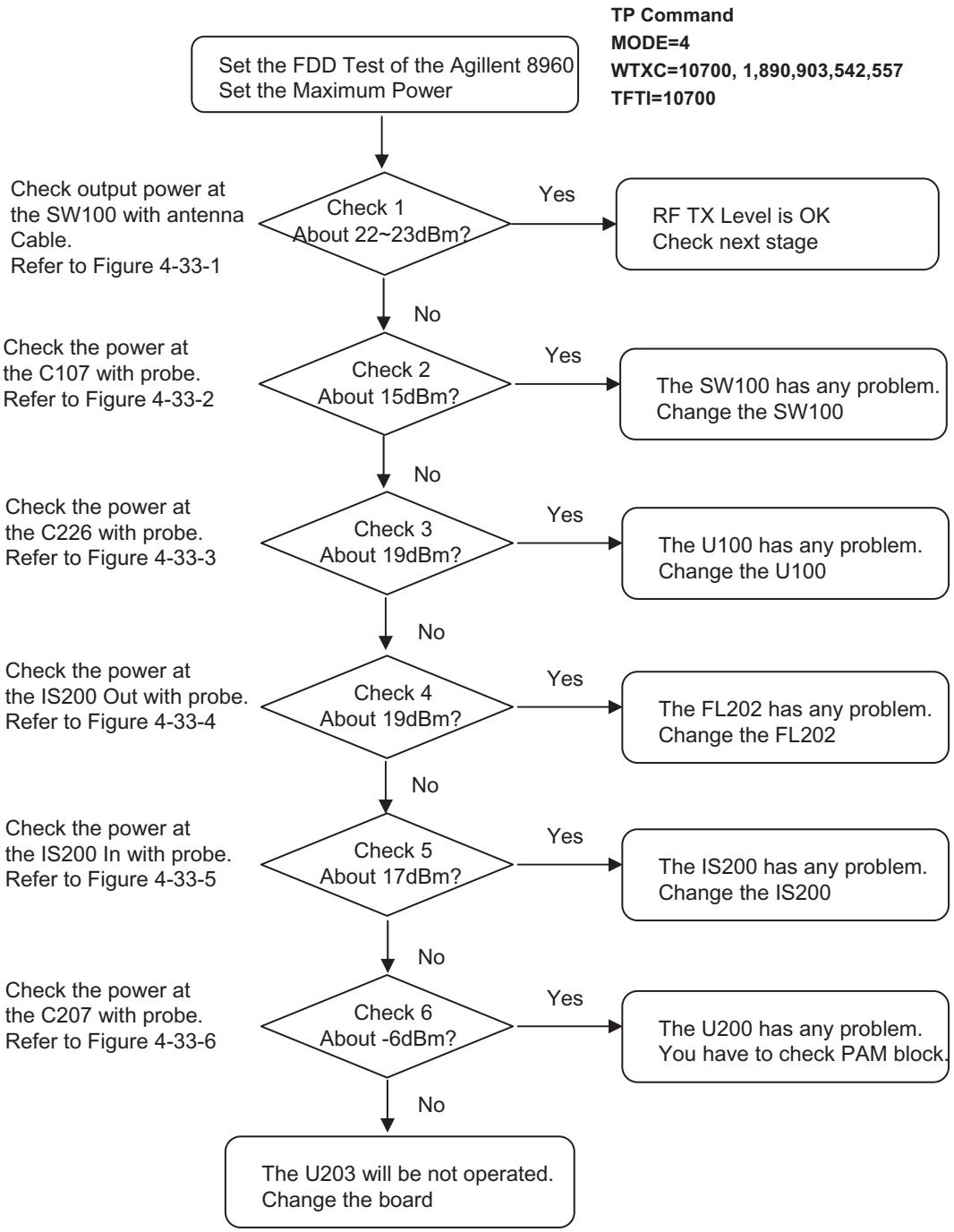
To verify that the phone fulfils requirments on maximum output power.



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4.20.5 Checking PAM Block

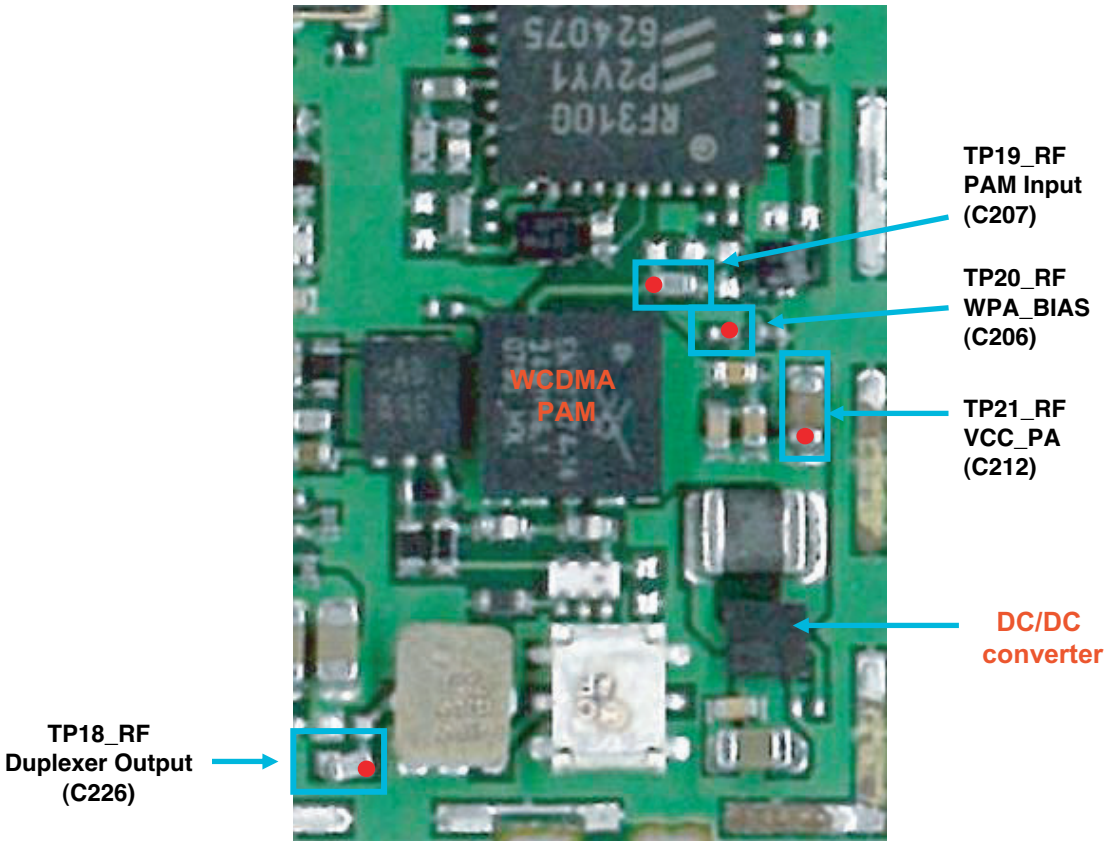

Figure 4-34. Test points of WCDMA TX PAM block

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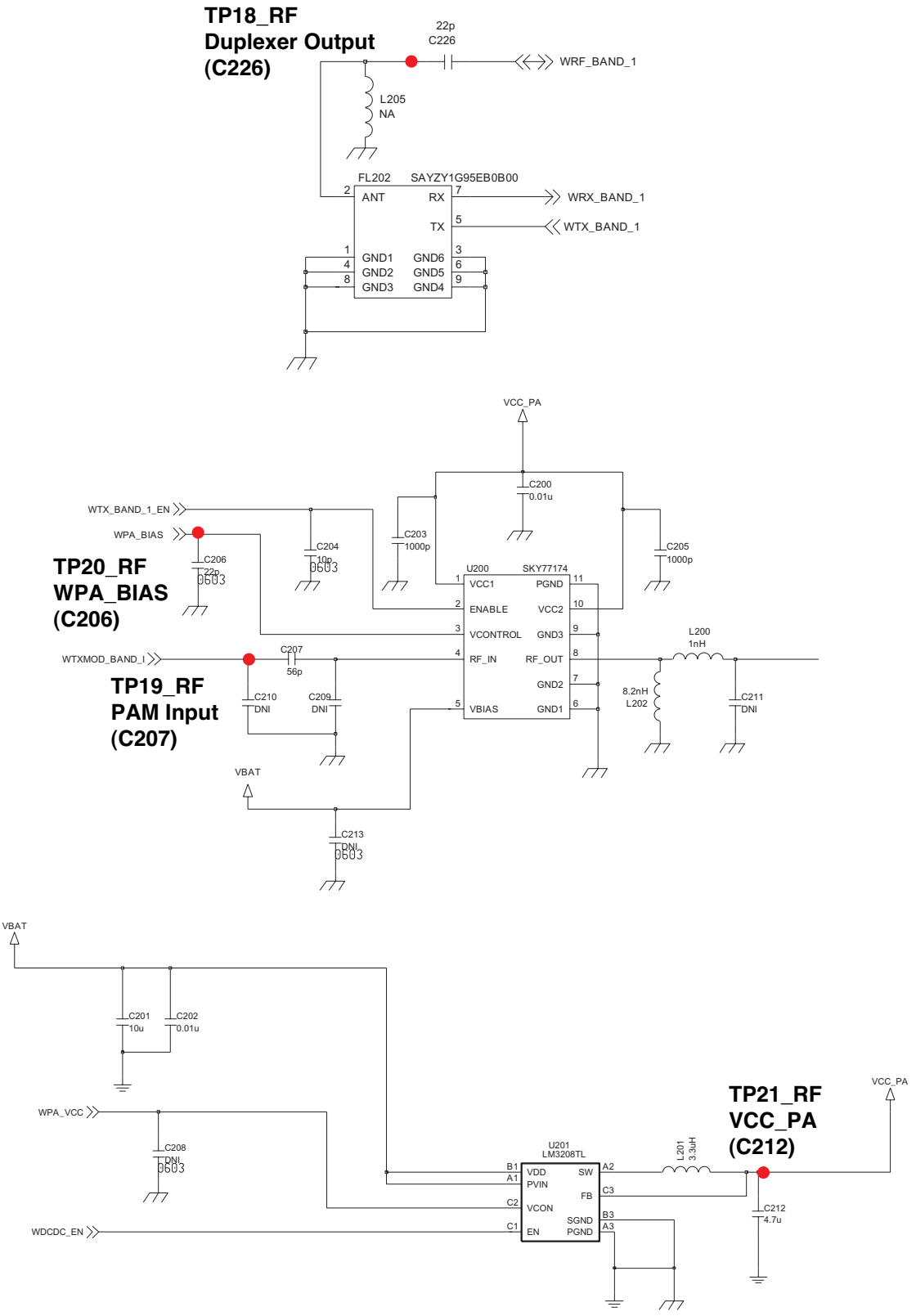

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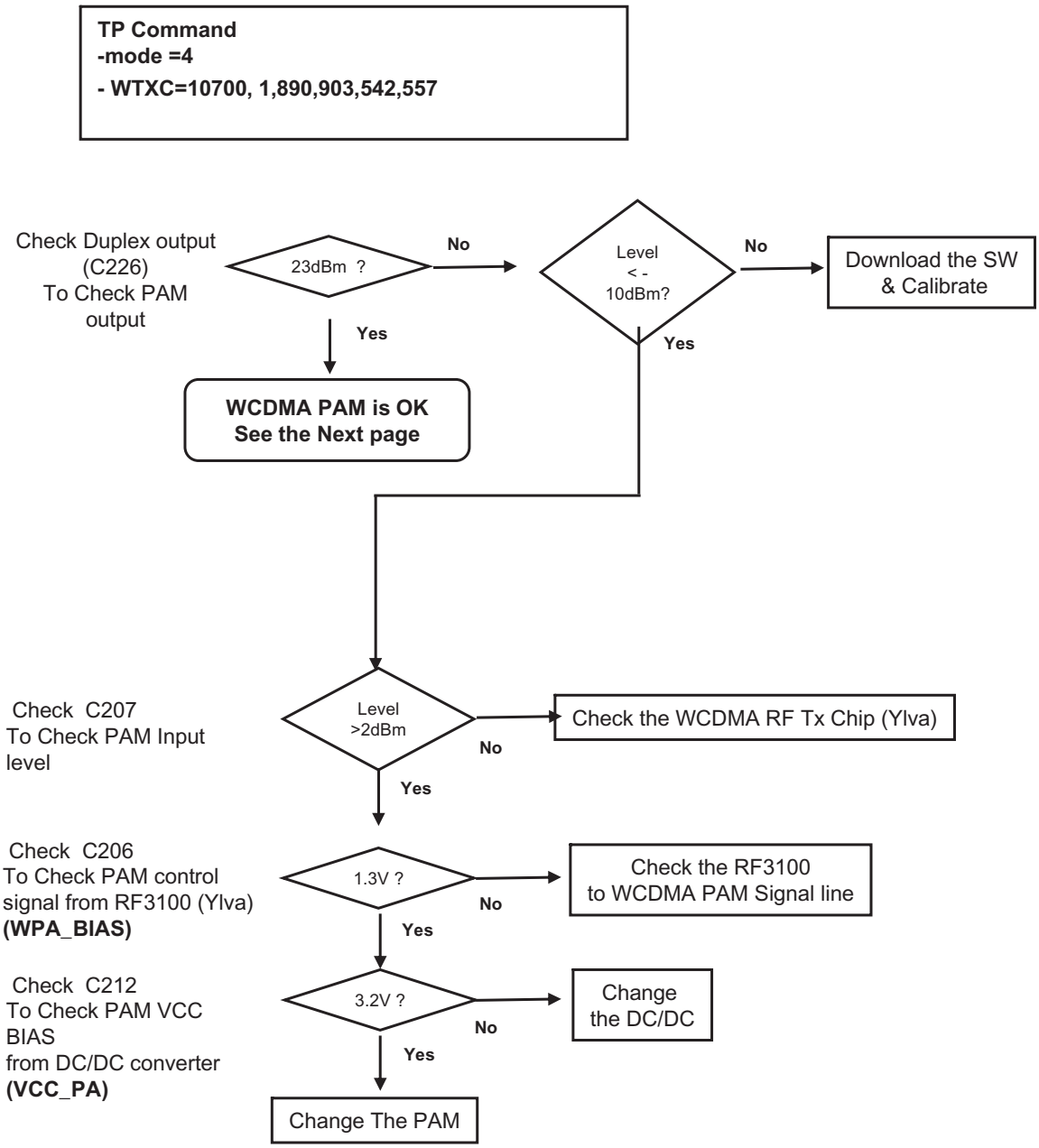

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4.20.6 Checking RX I,Q

To verify the RX path you have to check the pk-pk level and the shape of the RX I,Q.

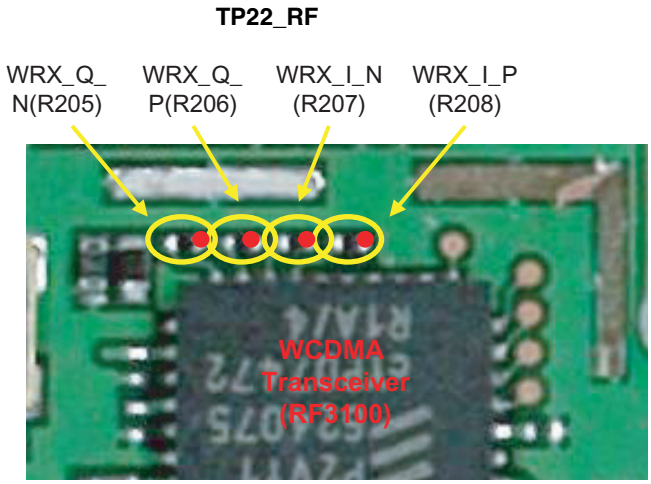
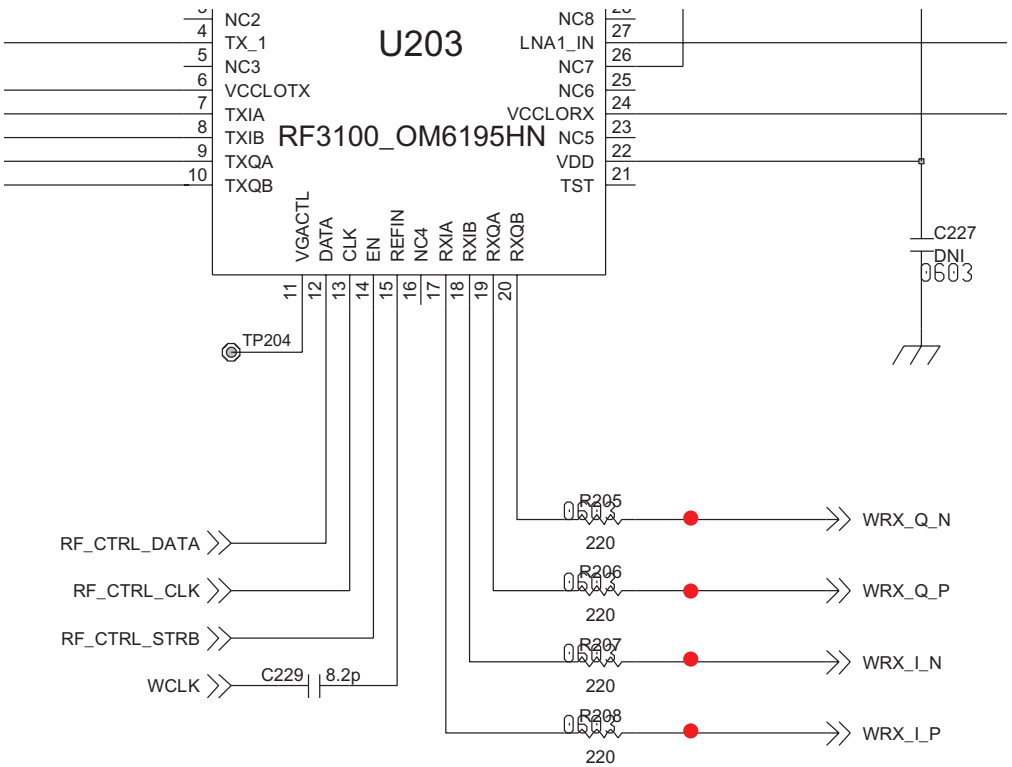


Figure 4-35. RF3100, WCDMA Transceiver



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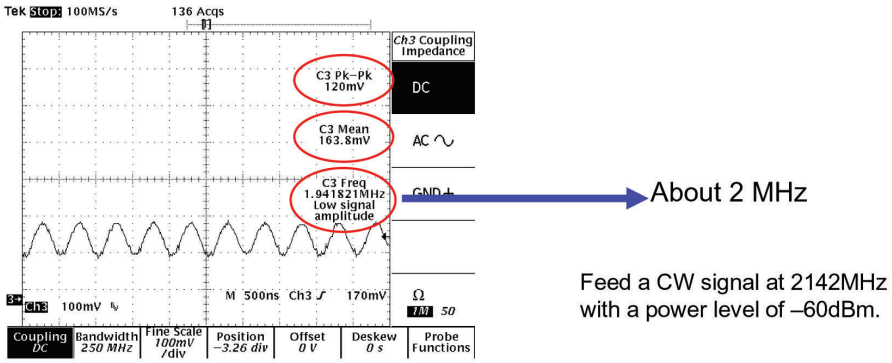

Figure 4-36-1. RX I,Q signal (CW:2142MHz)

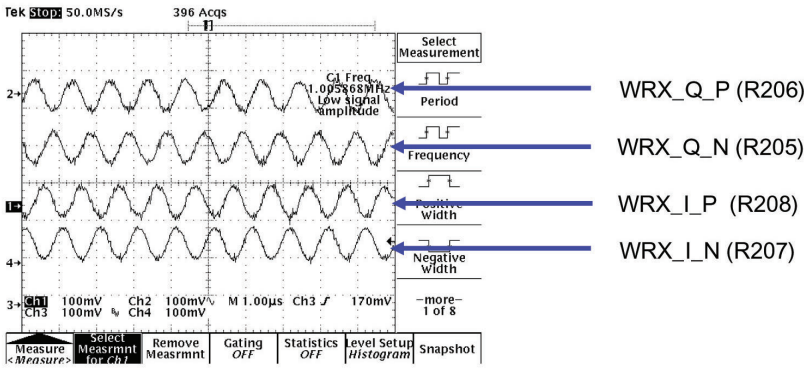

Figure 4-36-2. RX I, Q signal

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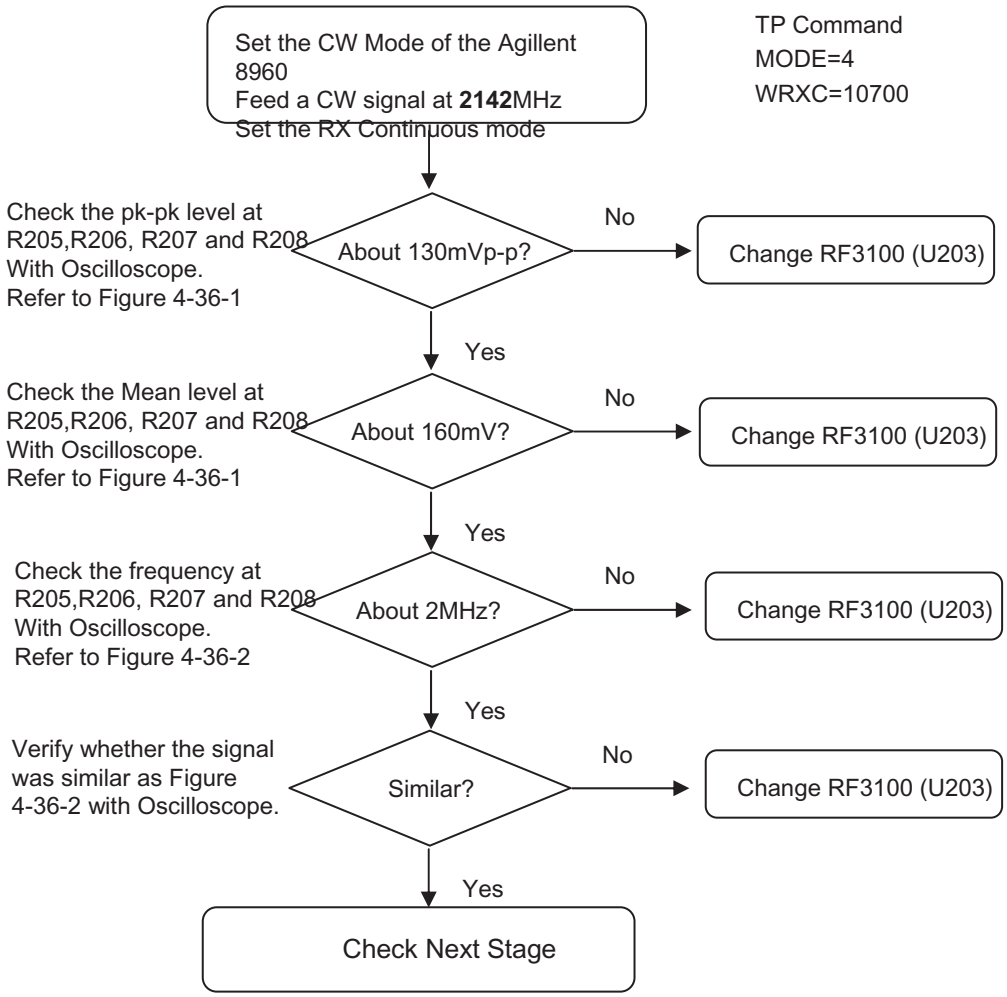

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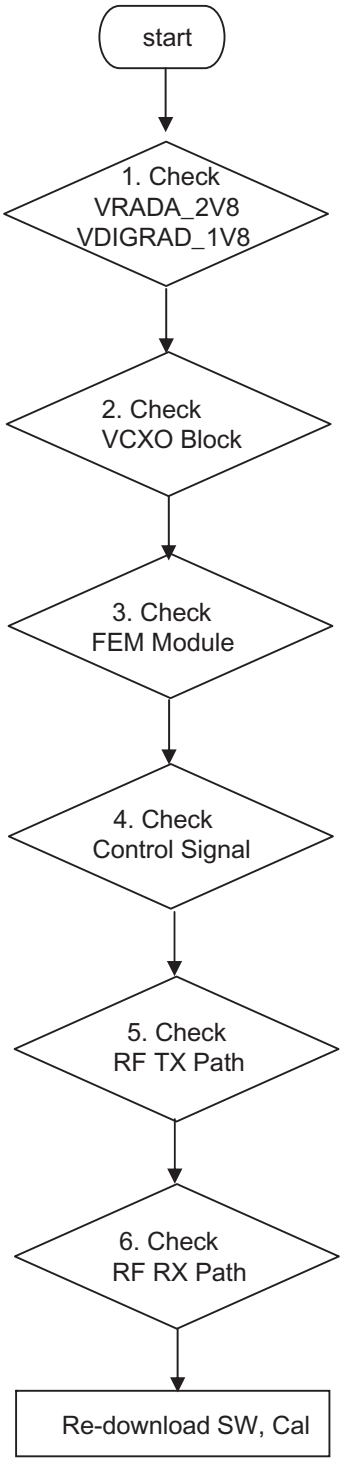
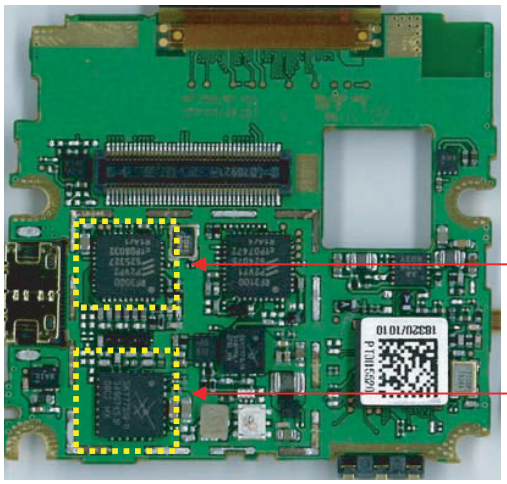
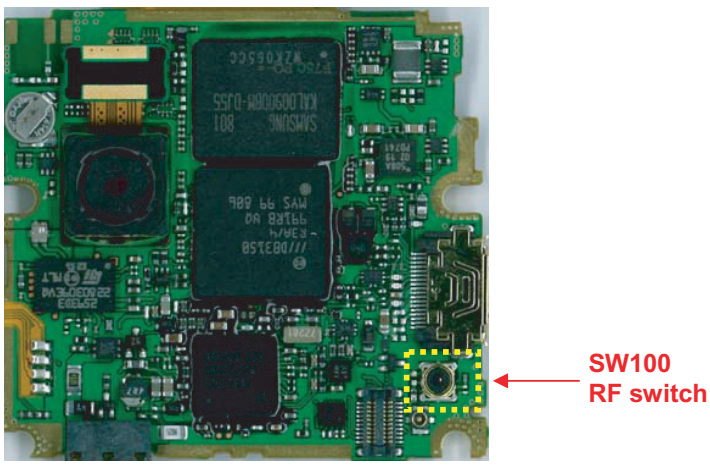
4.21 Checking GSM Block





(Top)



(Bottom)

Figure 4-13. GSM Block

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4.21.1 Checking Regulator Circuit

Refer to 4.15 Checking Power Source block

IF you already check this point while checking power source block (4.15), You can skip this test.

4.21.2 Checking VCXO Block

Refer to 4.16 Checking VCXO block

IF you already check this point while checking VCXO block (4.16), You can skip this test.

4.21.3 Checking Front End Module

Refer to 4.18 Checking Ant. SW Module

IF you already check this point while checking Ant. SW module (4.18), You can skip this test.

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4.21.4 Checking Control Signal

Test Program Script

MODE=0

SWTX=1,64,7

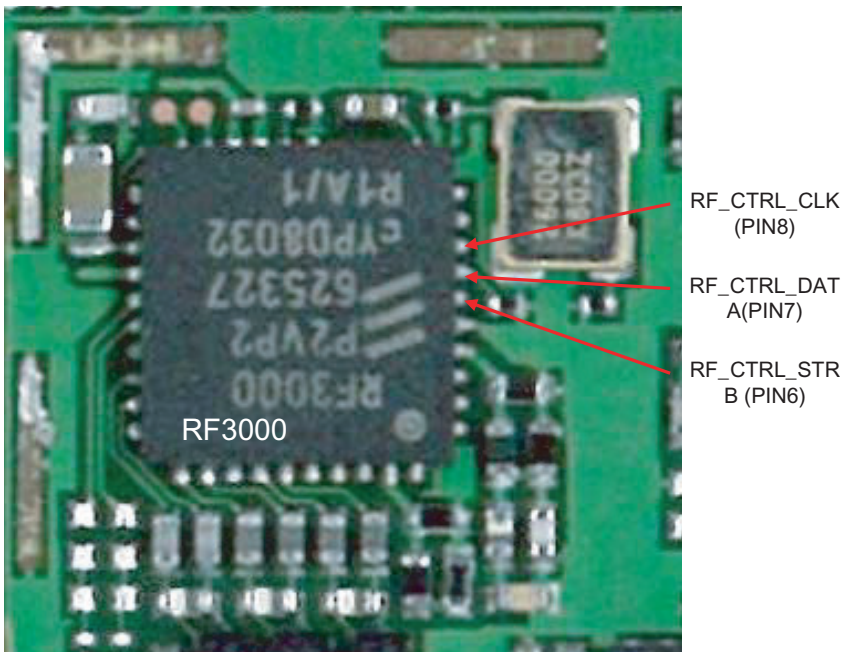
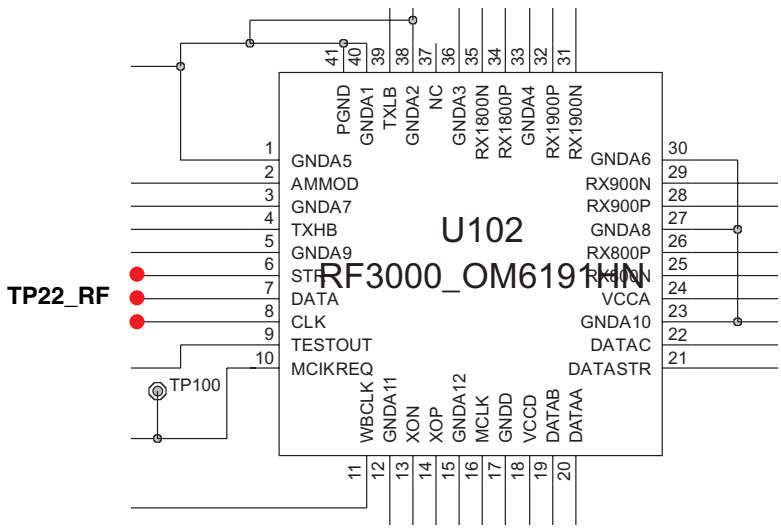


Figure 4-14. Test points of RF control signals



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4. TROUBLE SHOOTING

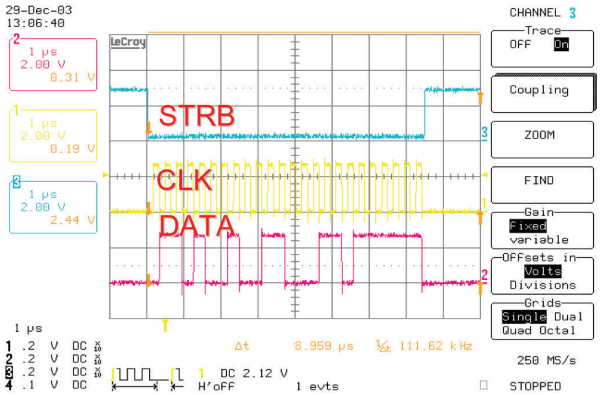
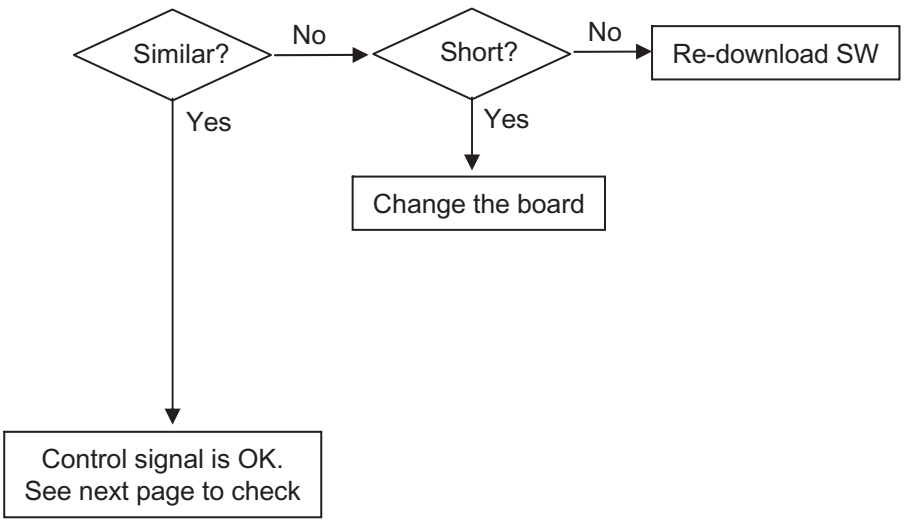


Figure 4-15. GSM RF Control signal

Check PIN6,PIN7,PIN8 of RF3000.
Check if there is any Major difference.
Refer to Figure 4-15



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4.21.5 Checking RF Tx Path

A. GSM Tx path Level

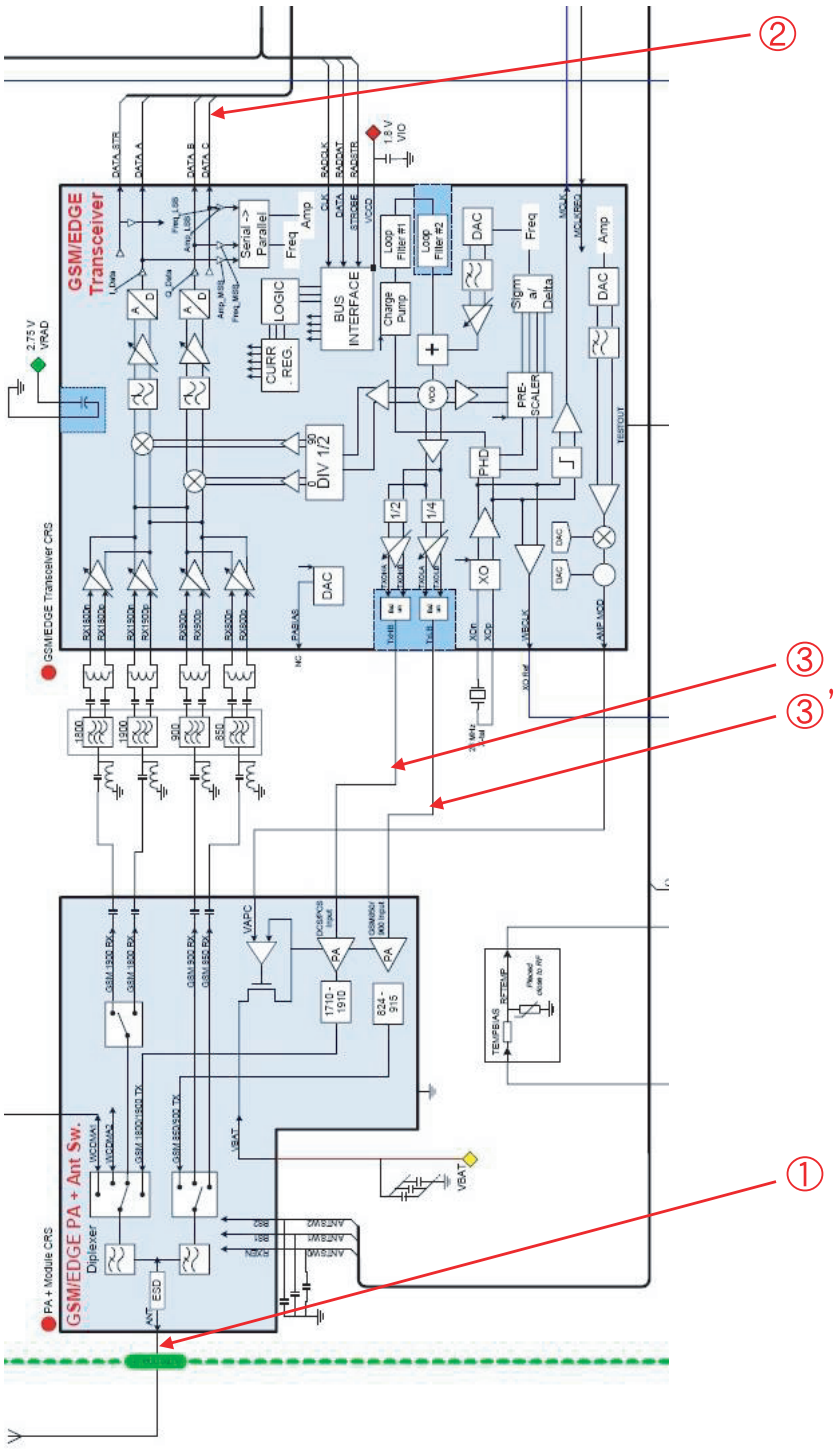

Figure 4-16. GSM/DCS/PCS Tx Path Level

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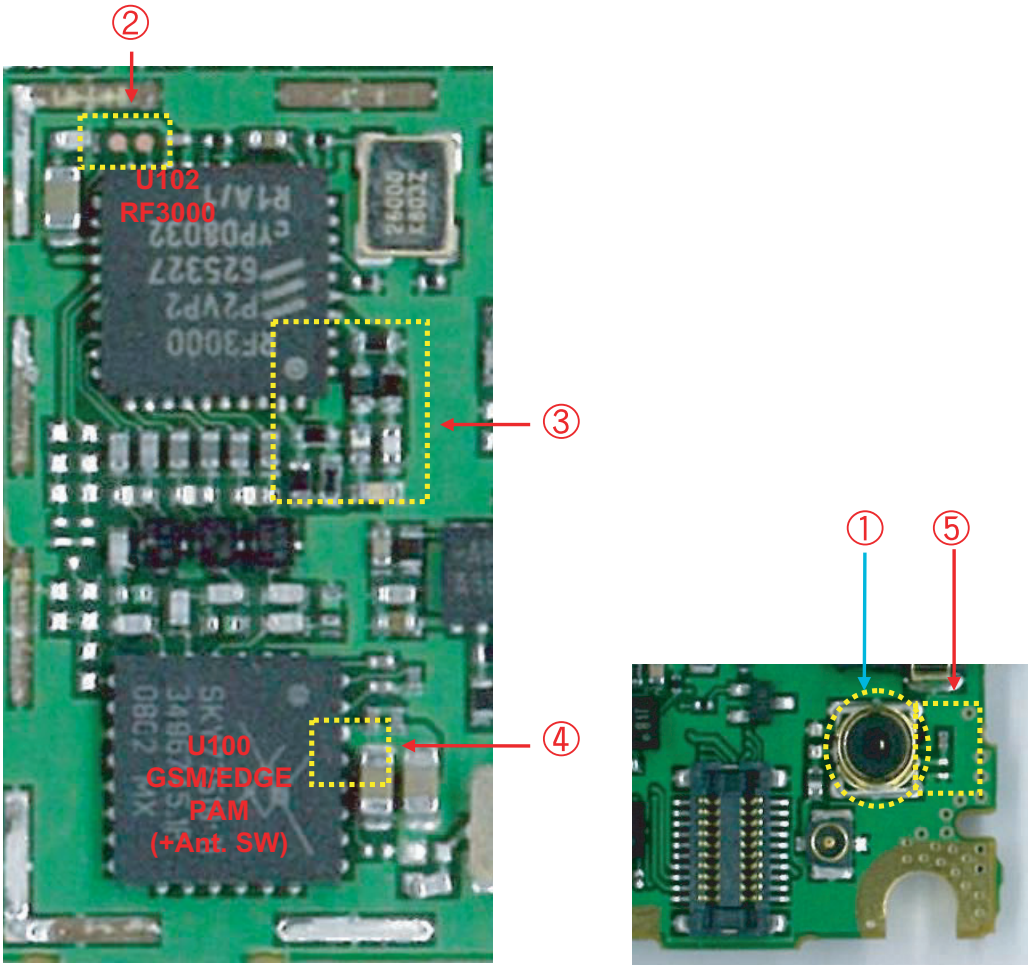

Figure 4-17. Test Points of GSM/DCS/PCS Tx Path

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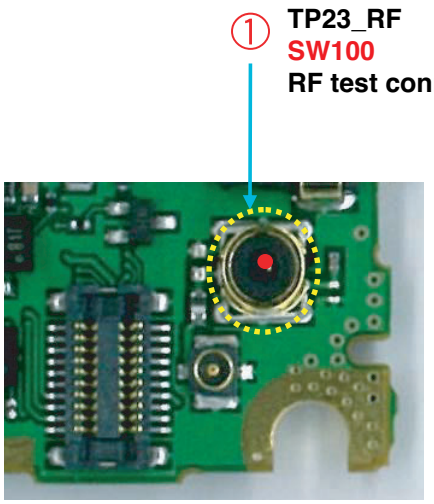
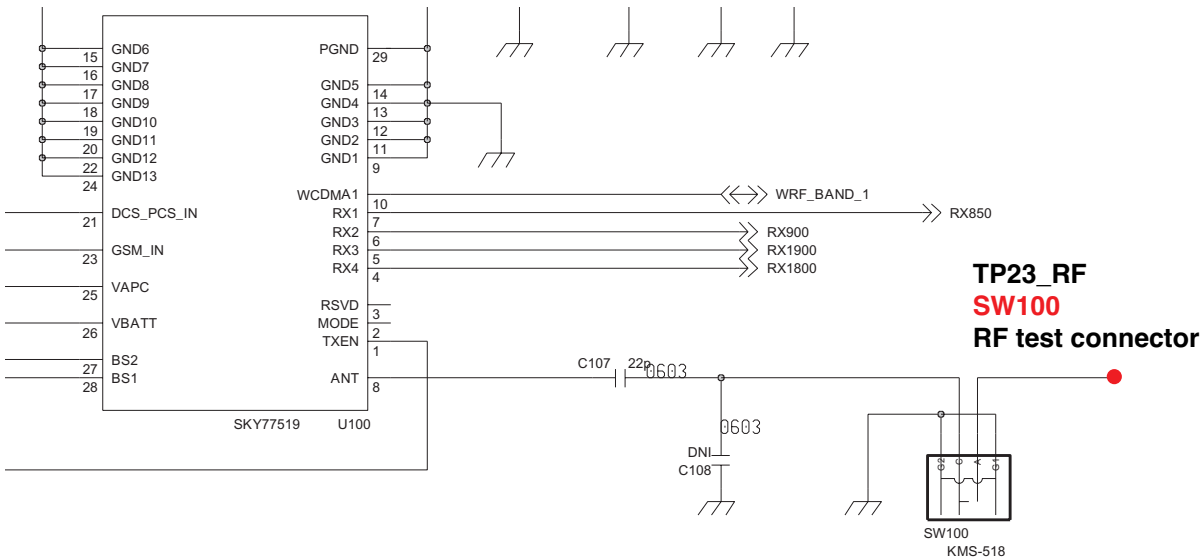
B. GSM Tx Output Level Check



(Bottom)



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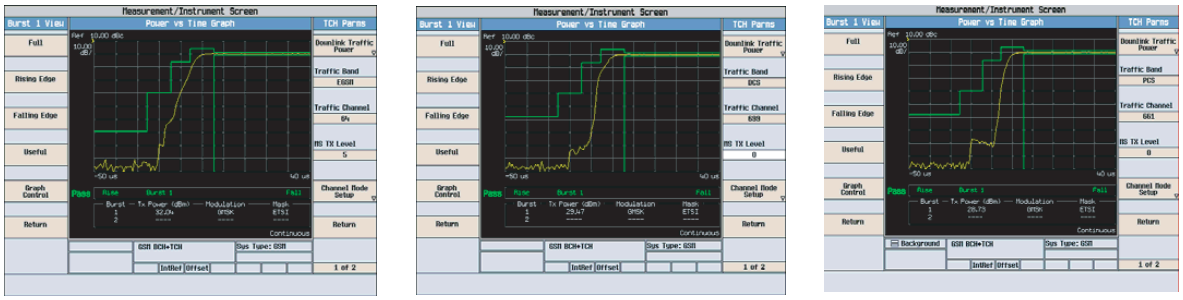


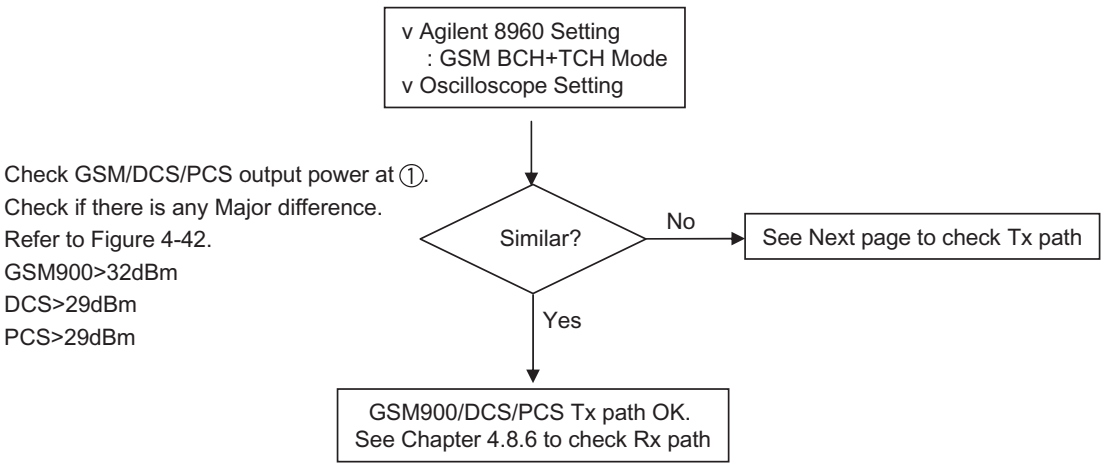
Figure 4-18. GSM900/DCS/PCS Tx Level at ①

Test Program Script

1. GSM900 Tx
MODE=0
SWTX=1,64,5

2. DCS Tx
MODE=2
SWTX=1,699,0

3. PCS Tx
MODE=1
SWTX=1,661,0



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C. GSM RF Transceiver Check

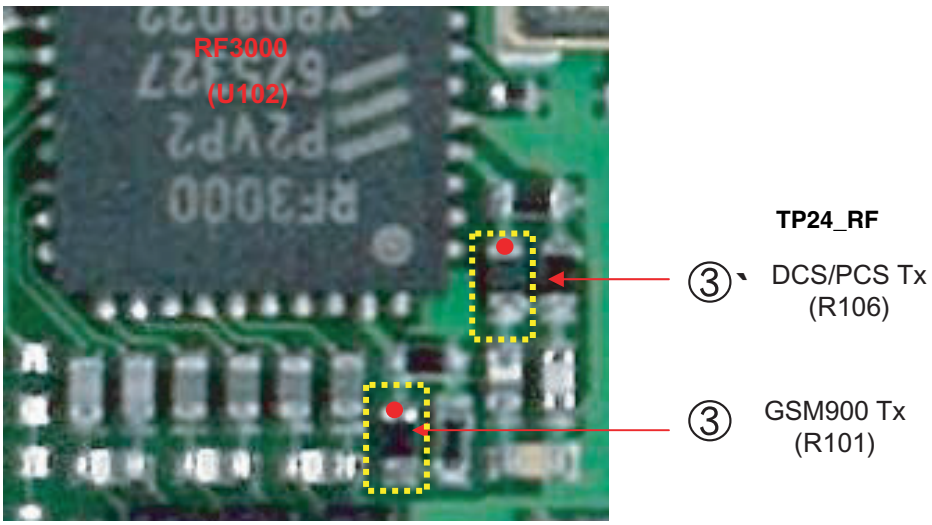
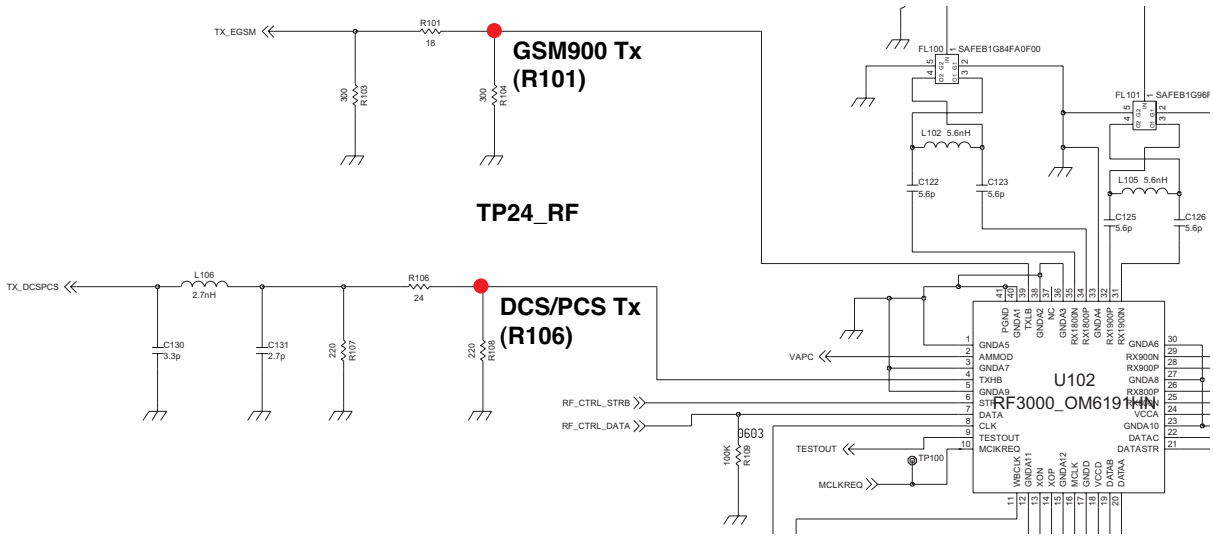
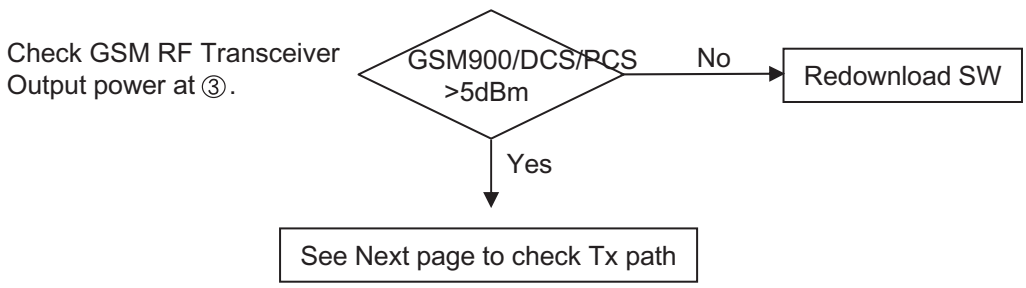


Figure 4-19. GSM900/DCS/PCS Transceiver (RF3000)





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D. GSM PAM Check

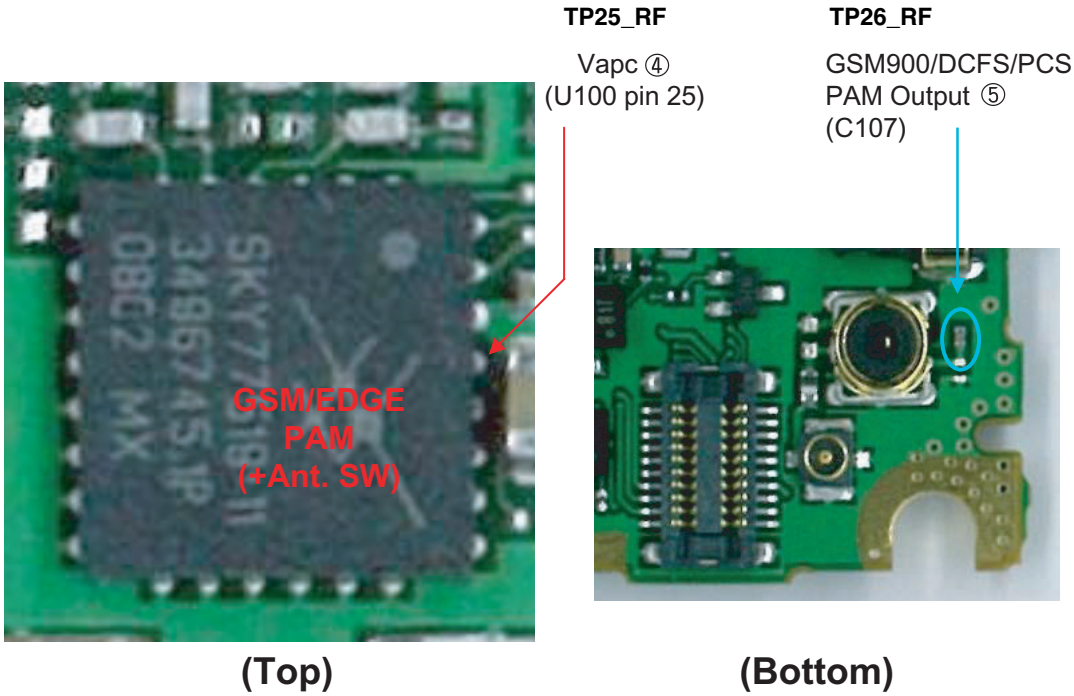
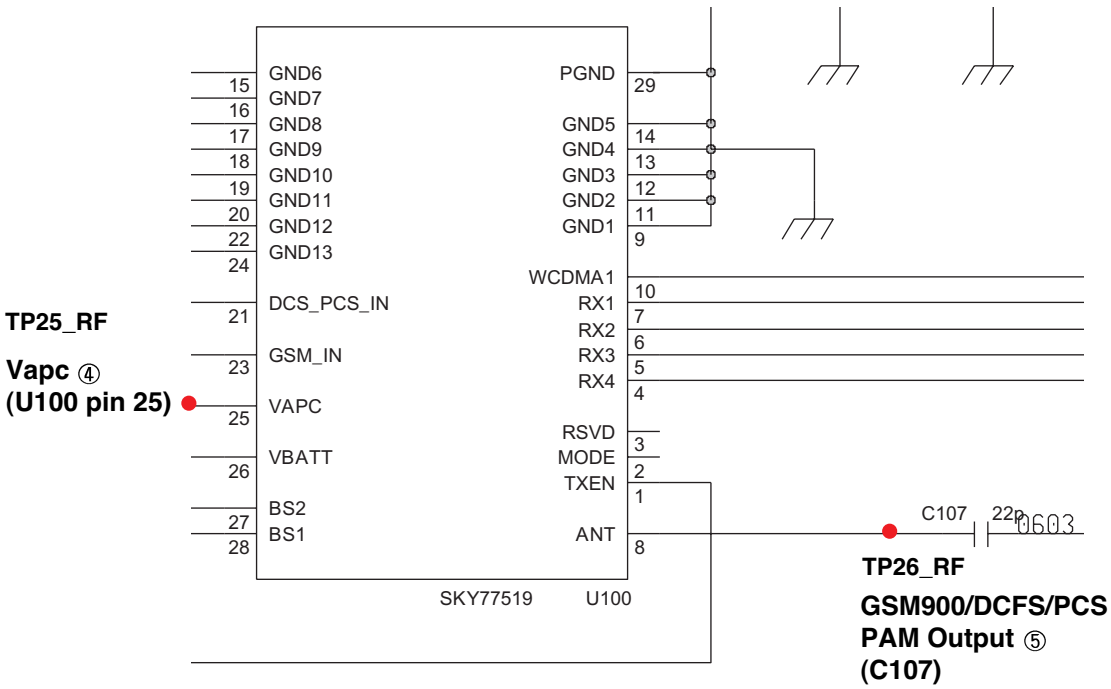


Figure 4-20. Test points of GSM900/DCS/PCS Tx



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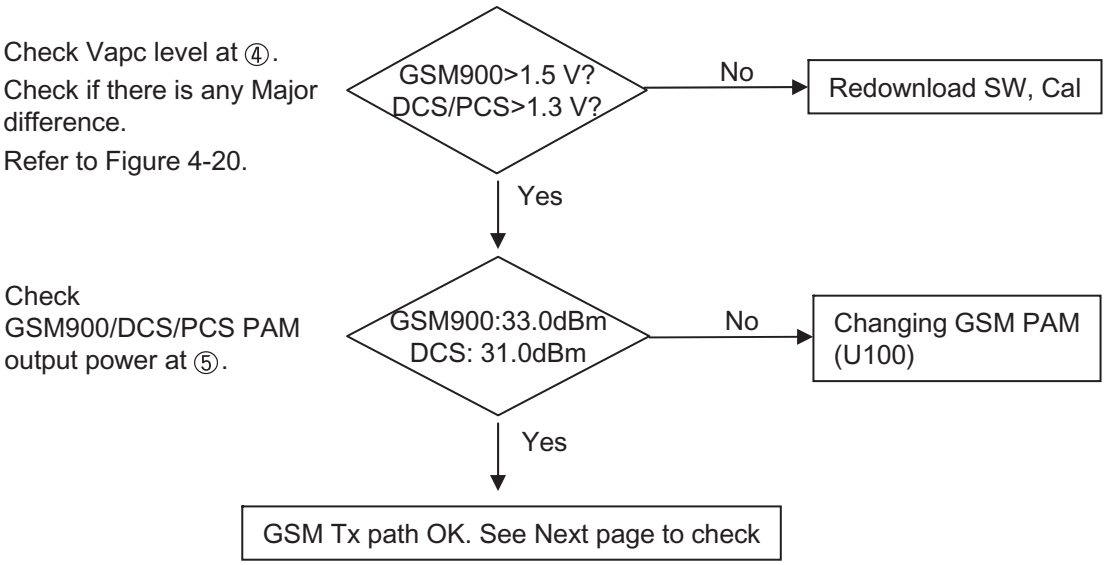

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4.21.6 Checking RF Rx Path

A. GSM Rx path Level

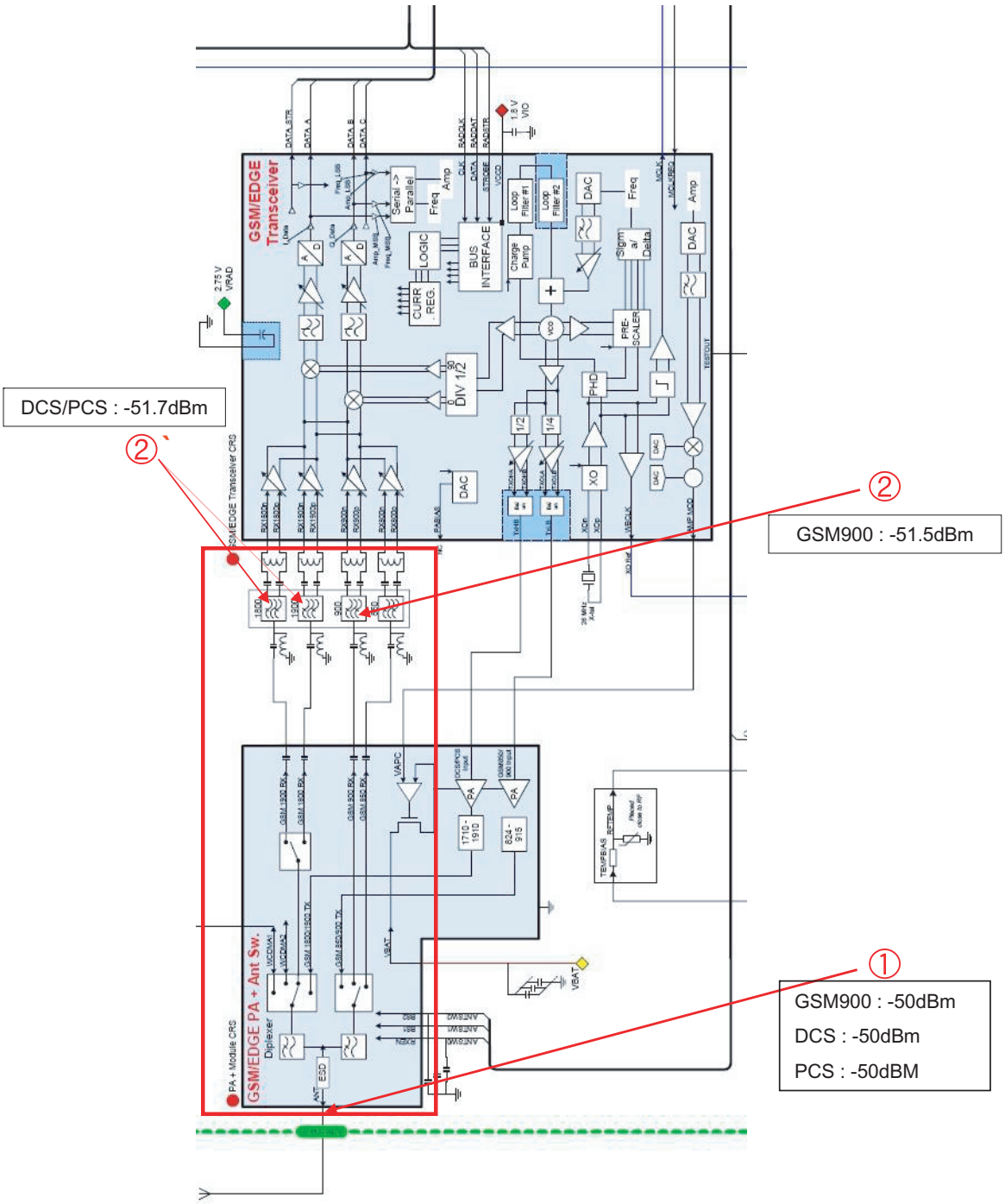

Figure 4-21. GSM/DCS/PCS Rx Path Level

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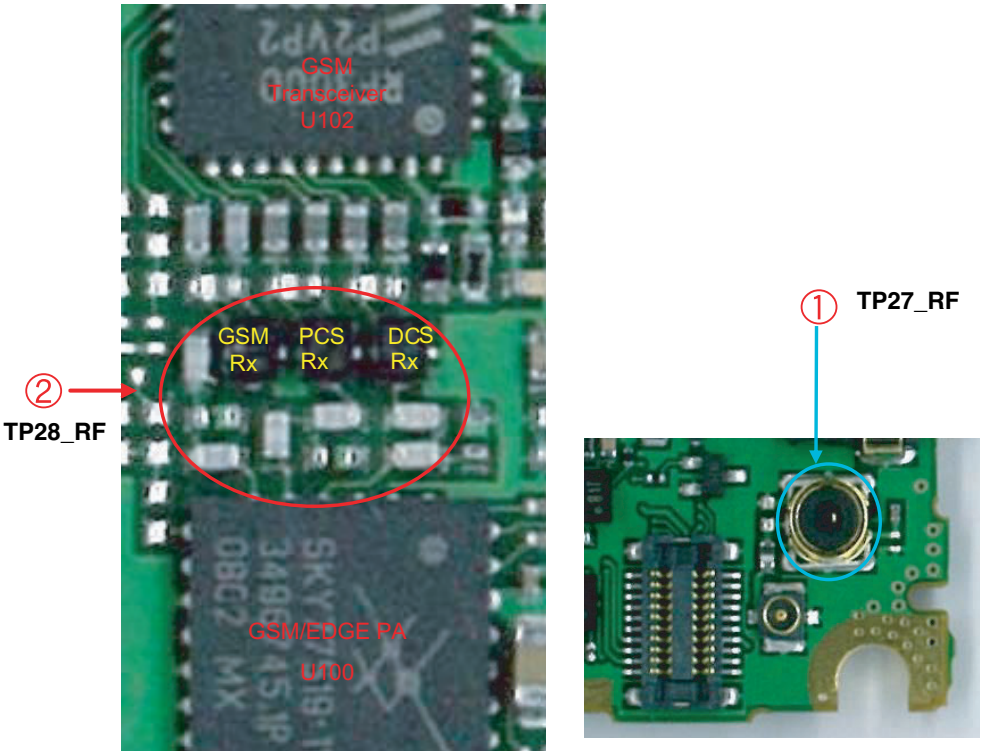

Figure 4-22. GSM900/DCS/PCS Rx path

Test Program Script

1. GSM900 Rx
   MODE=0
   SWRX=64,2

2. DCS/PCS Rx
   MODE=2(DCS),1(PCS)
   SWRX=699,2

v Agilent 8960 Setting
  CW Mode
  GSM900 : -50dBm@Ch65(948MHz)
  DCS : -50dBm@Ch700(1842.8MHz)
  PCS : -50dBm@Ch700(1967.8MHz)
v Oscilloscope Setting

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B. GSM RF Level Check

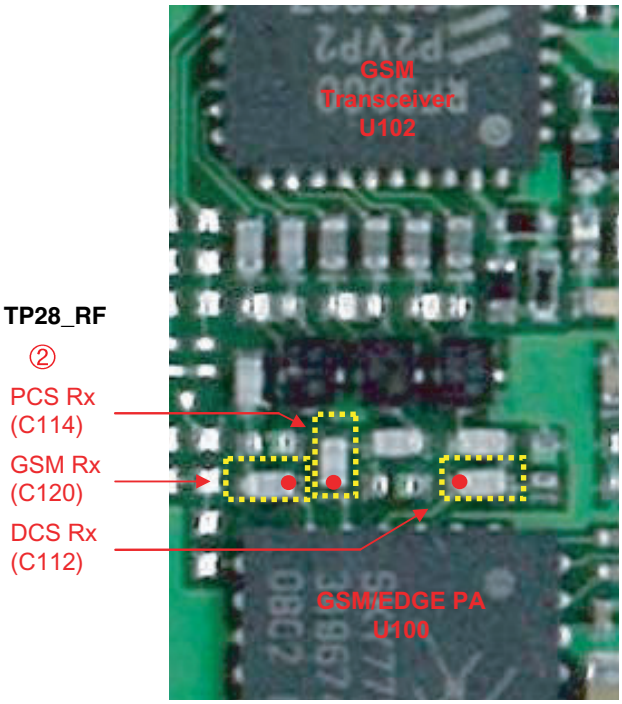
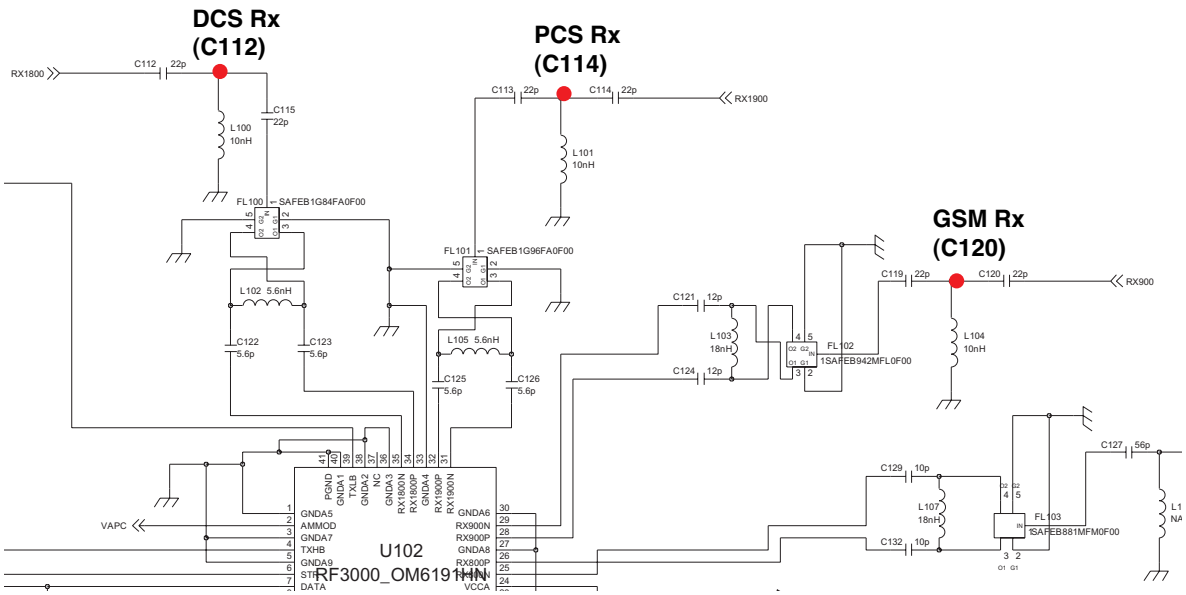


Figure 4-23. Test Points of GSM900/DCS/PCS Rx



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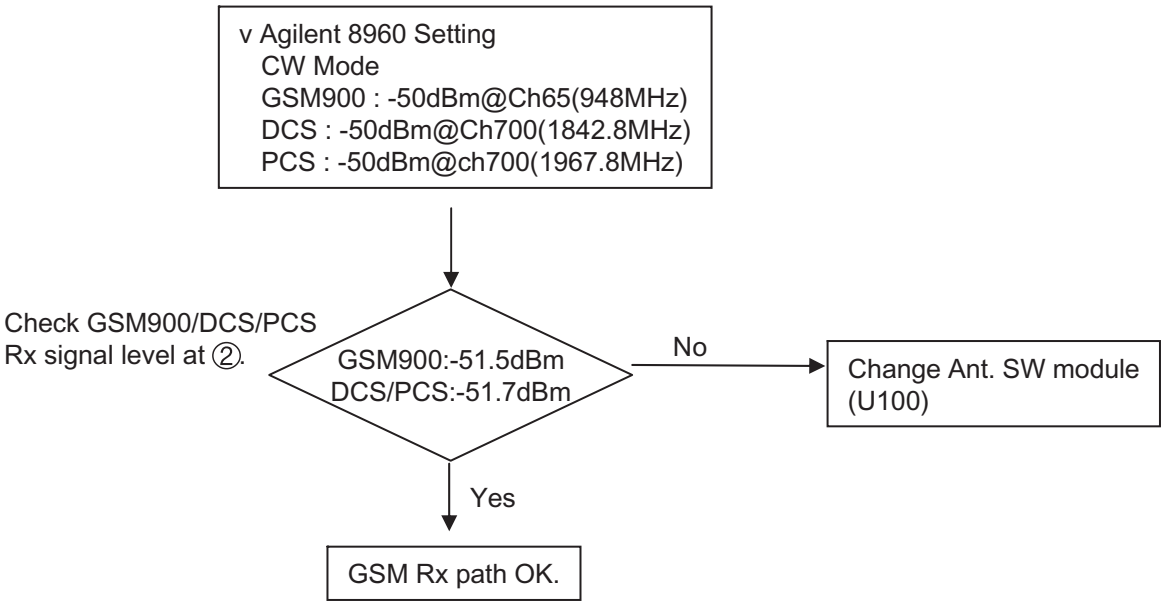

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5. DOWNLOAD

5.1 LGDP2

5.1.1 File map

C:\DOWNLOAD
- LGDP2_V34_UMTS_KF750.exe (Execution File)
- meflash.dll (EMP DLL File)
- LDR Files (Loader Files)
  CXC1721606_A2_P6C_ACC_Pre.ldr,
  CXC1721607_A2_P6C_APP_Pre.ldr,
  CXC1721610_A2_P6C_ACC_Production.ldr,
  CXC1724028_1A2_P6C_APP_Large_Production.ldr

C:\DOWNLOAD\Model\EMP\KF750
- KF750_080501_MP.dll (Model DLL)
- SSW File (Model Binary)
- MAP File (GDFS Files)

5.2.1 Frame Preference Dialog

• Port Selection

Select download ports.

• DLL Selection

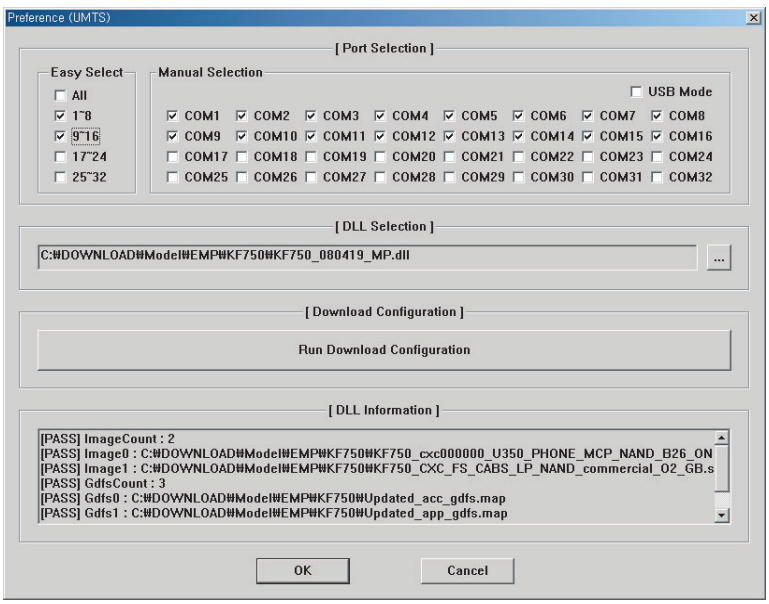
Select Model DLL.

• Download Configuration

Setup DLL configuration.

• DLL Information

Show DLL configuration information what is selected.



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5.1.3 DLL Preference Dialog

This page is depend on model DLL.
To run, press “Download Configuration” at Frame Preference Dialog.

- Use USB Address

  If this check is unchecked, Connected phone use from Port 1 dialog.

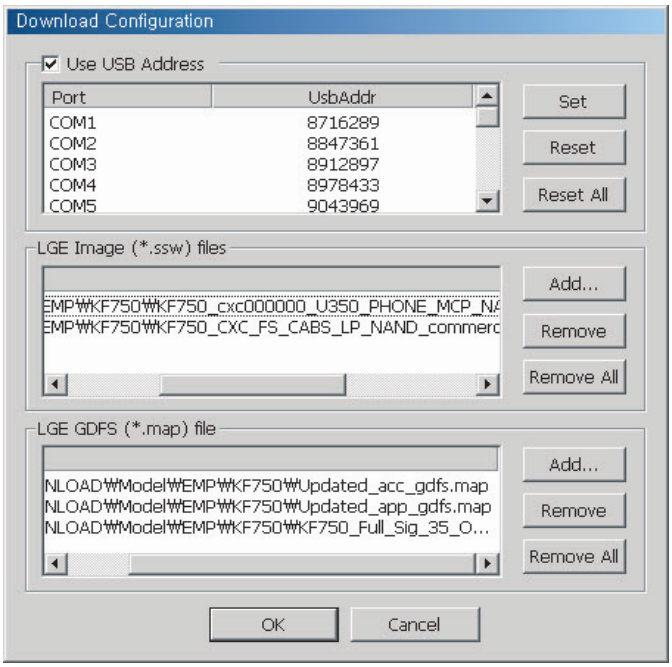
  Unchcked, use fixed USB port. You should assign port number with USB Address.

- Image Files

  Select Image binary files.

- GDFS File

  Select GDFS files.



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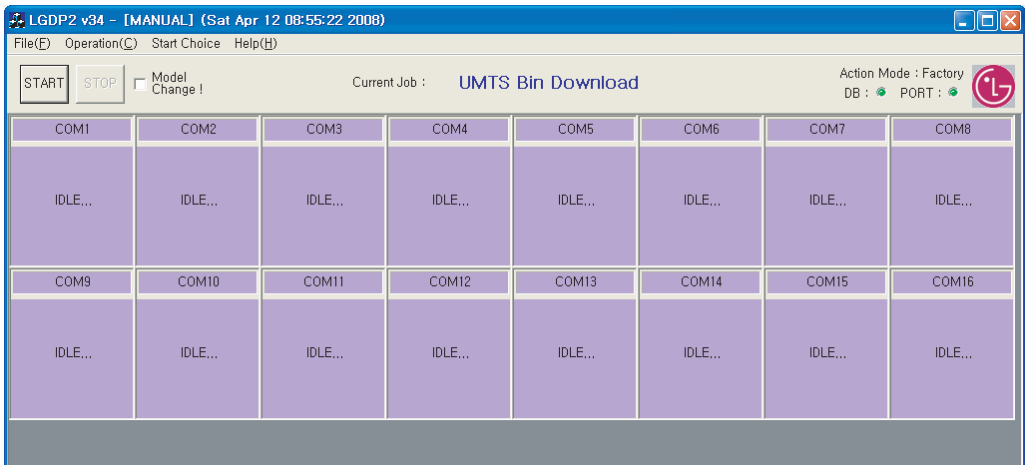
5.2 Download

- On Frame Preference Dialog, select download port and select model DLL.
- Add Binary images and GDFS files.
- Close all preference dialog and select Start Button on main page.
- Connect phone and wait until download finished.



*** Usage fixed USB port**

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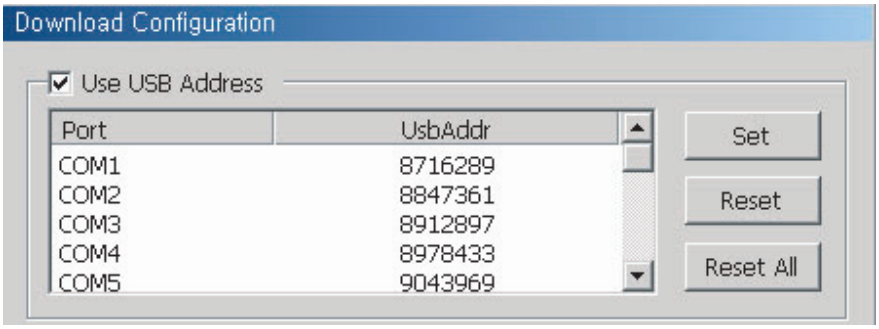
5.2.1 How to run

Not Qualcomm USB Driver but EMP USB Driver assign port ID in order phone connected from ID 1.
For use fixed port ID, assign port ID before download job.



5.2.2 Setting

- Phone should connect just one before detect USB address.
- Connect phone first curl-cord.
- Press Set Button.
- Check USB Address which is loaded.
- Do 2 again.
- After assign all ports, press save dialog.

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6. BLOCK DIAGRAM

GSM & WCDMA RF Block

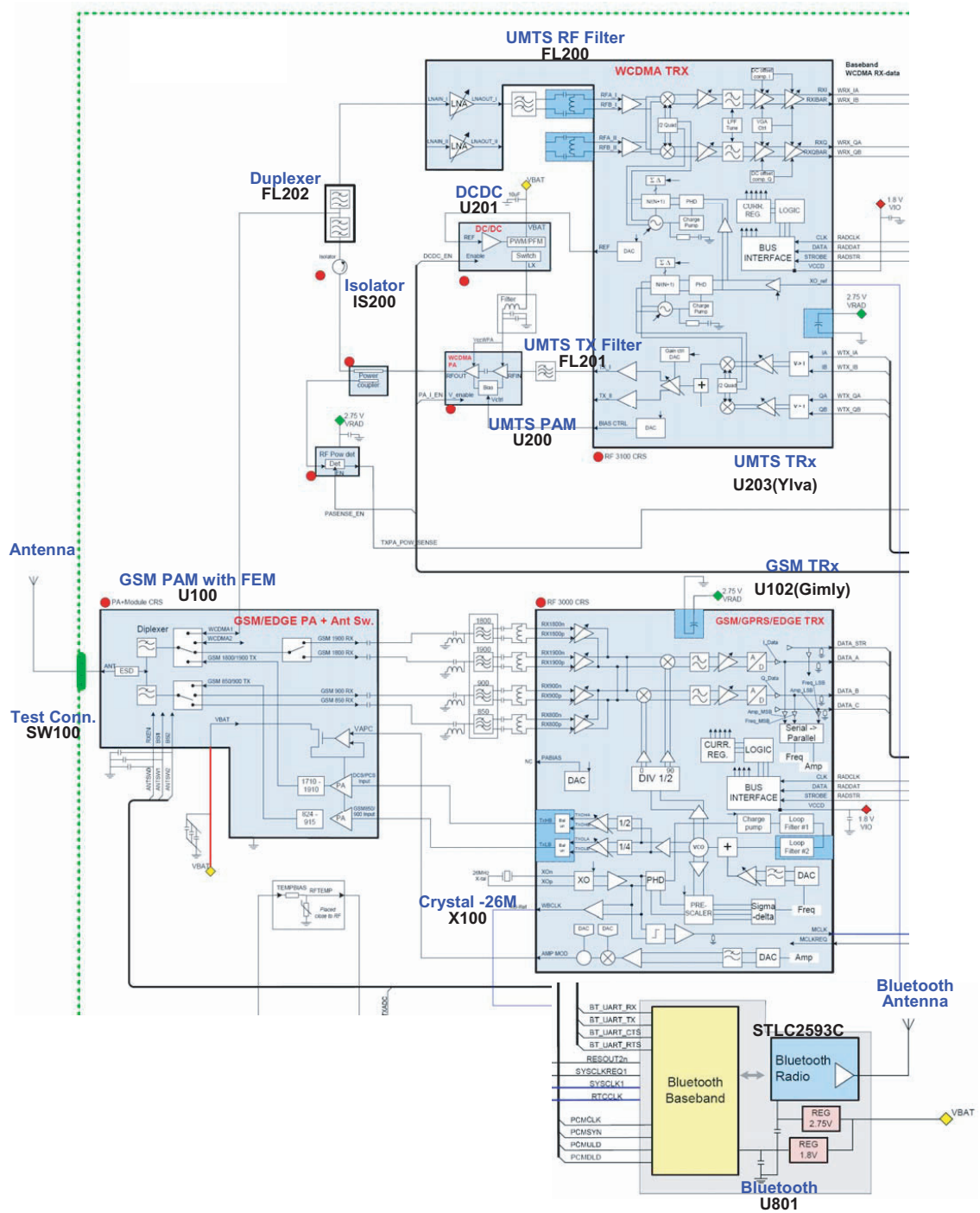

Figure 5-1. RF Block Diagram

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Block	Ref. Name	Part Name	Function	Comment
Common	U100	SKY77519	FEM	Band Select
	SW100	KMS-518	Test Connector	Calibration, etc
	X100	KSX-23-26000KFA-QA0R	Crystal	Reference -13M
WCDMA	FL202	SAYZY1G95EA0B00	Duplexer	TRX
	U203	RF3100 (Ylva)	TRx	TRX
	FL200	SAFEB2G14FA0F00	RX RF Filter	RX
	FL201	SAFEB1G95KA0F00	Tx RF Filter	TX
	U201	LM3208DS	DC/DC	TX
	U200	SKY77174	PAM	TX
	IS200	CES201G95DCB000	Isolator	TX
	U202	LMV221	Power Detecting	TX
	N200	LDC181G9519B-327	Directional Coupler	TX
	U301	DB3150	Modem	TRX
GSM	U102	RF3000 (Gimly)	TRx	TRX
	U100	SKY77519	PAM	GSM/DCS/PCS Tri with FEM
	FL102	SAFEB942MFL0F00	Filter	RX
	FL101	SAFEB1G96FA0F00	Filter	RX
	FL100	SAFEB1G84FA0F00	Filter	RX
	U301	DB3150	Modem	TRX
Bluetooth	U801	STLC2593	Bluetooth	TRX

Table 5-1. RF Block Component

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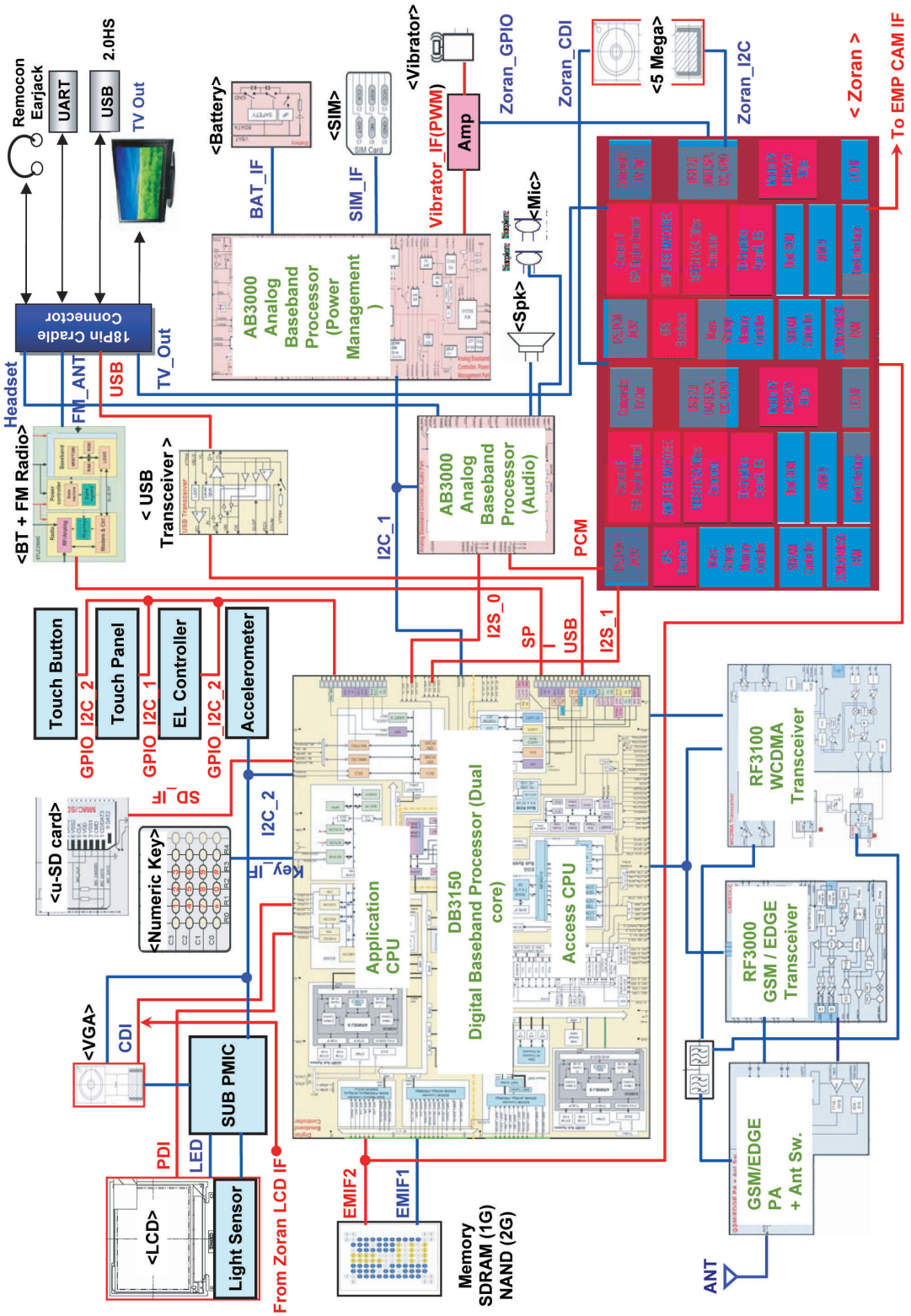
6. BLOCK DIAGRAM

Whole Block Diagram



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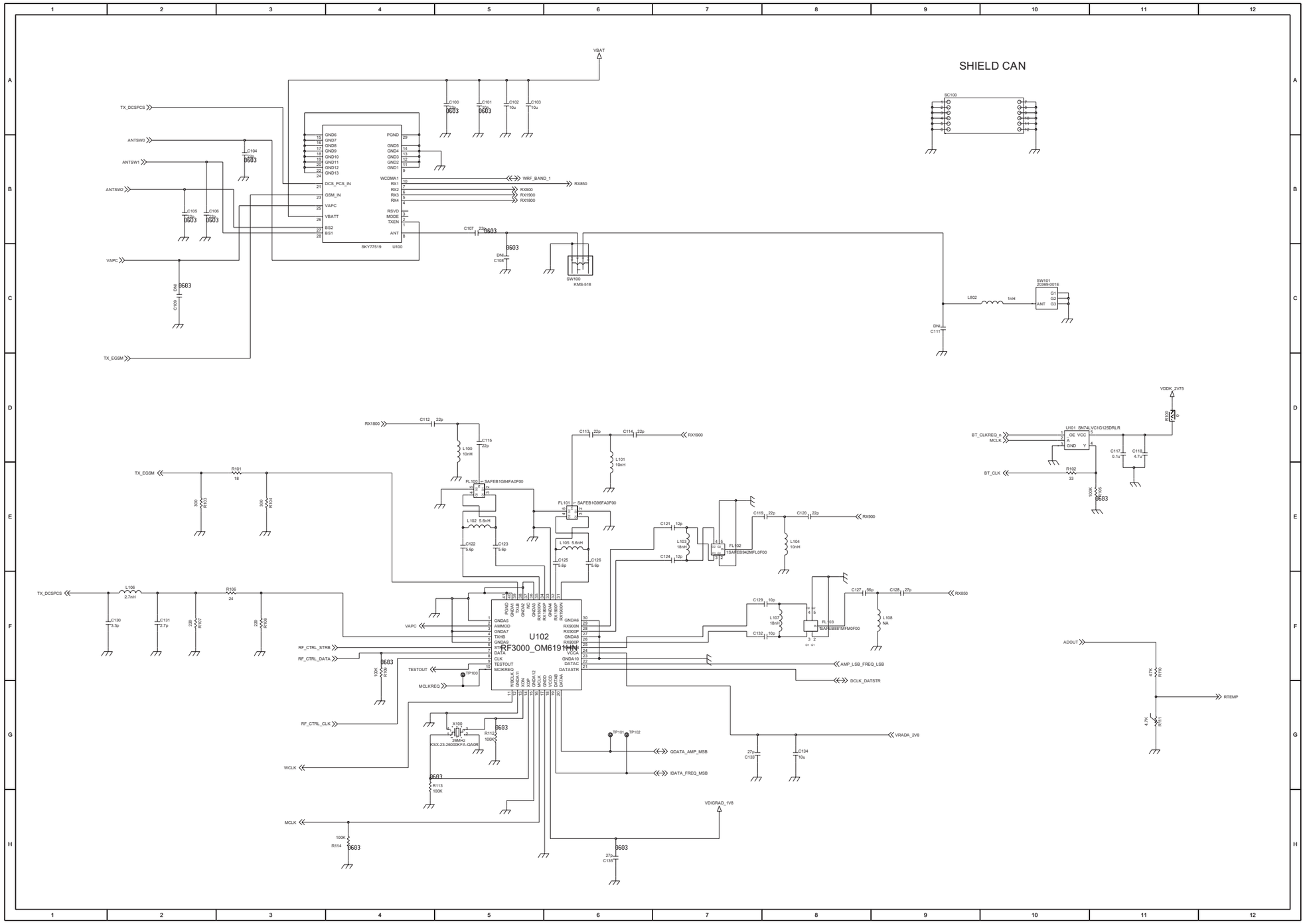
7. CIRCUIT DIAGRAM



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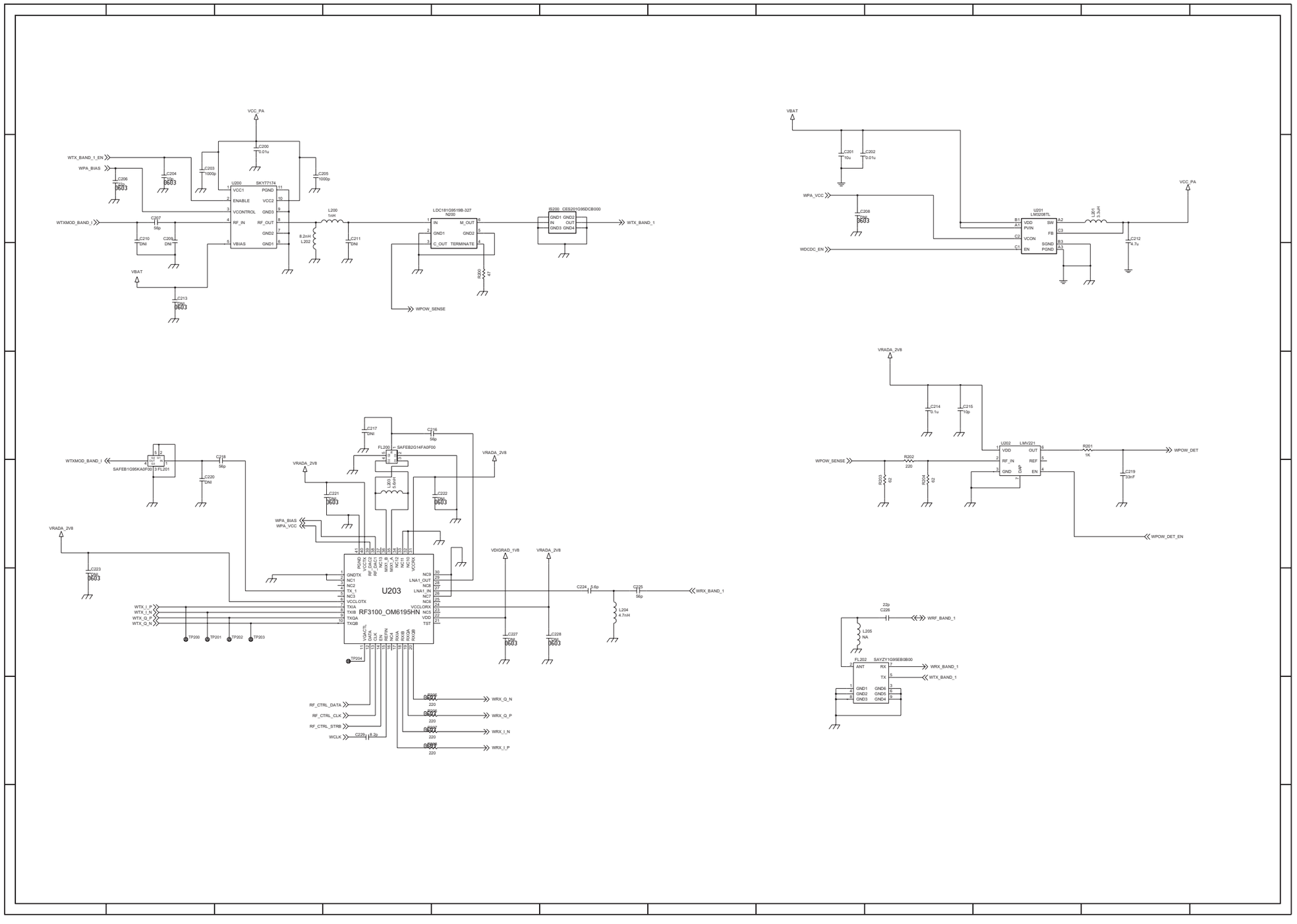
7. CIRCUIT DIAGRAM



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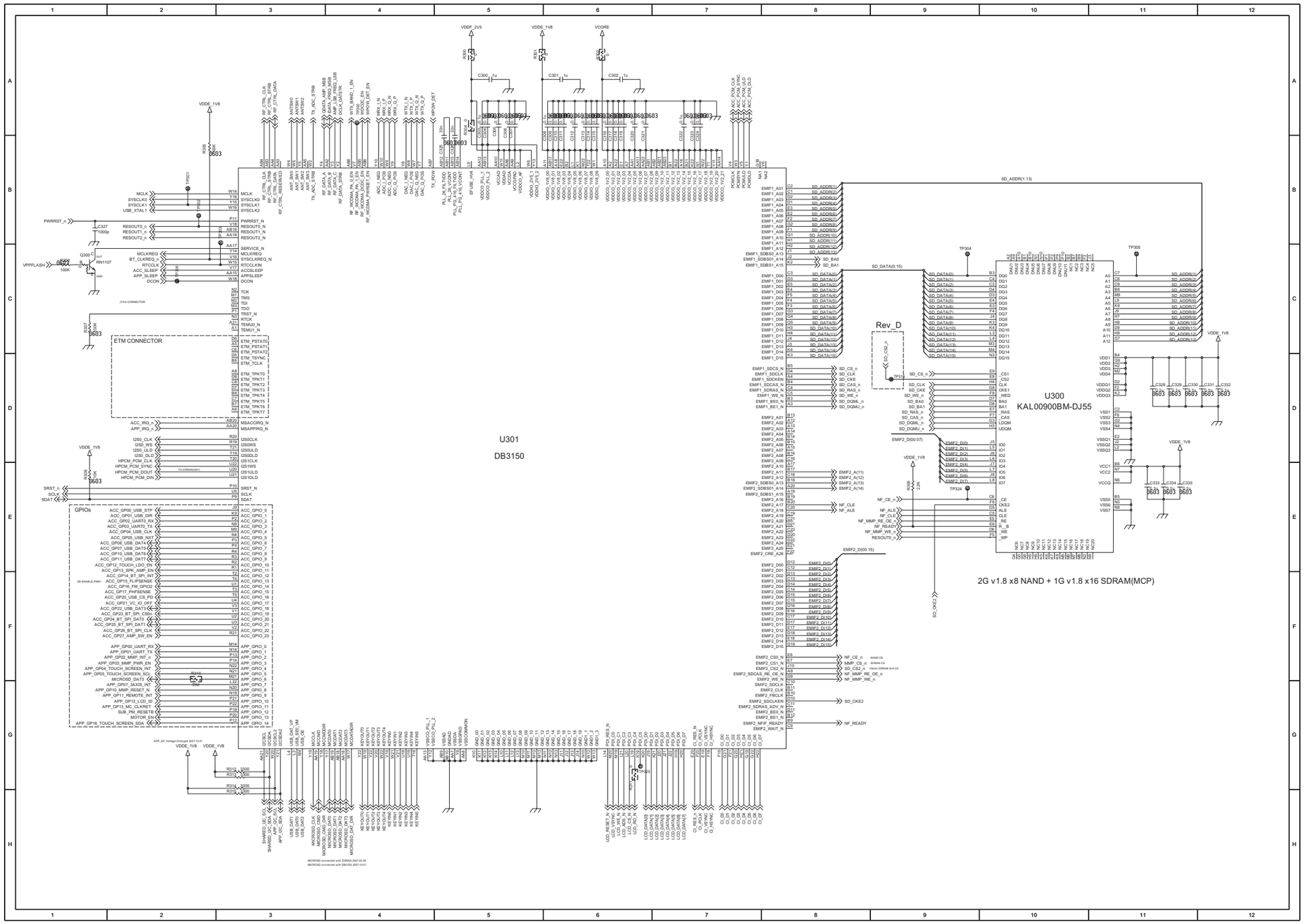
7. CIRCUIT DIAGRAM



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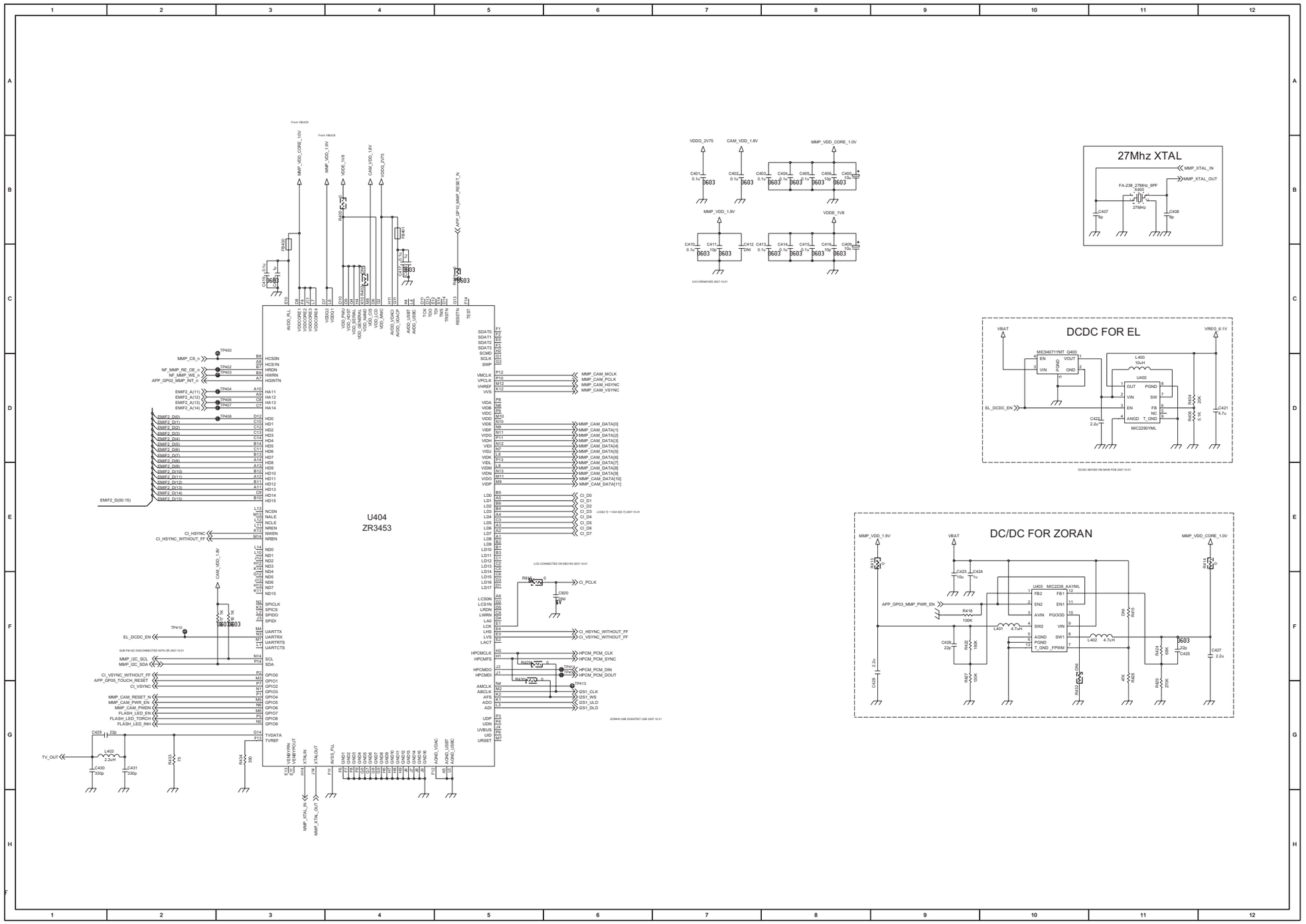
7. CIRCUIT DIAGRAM



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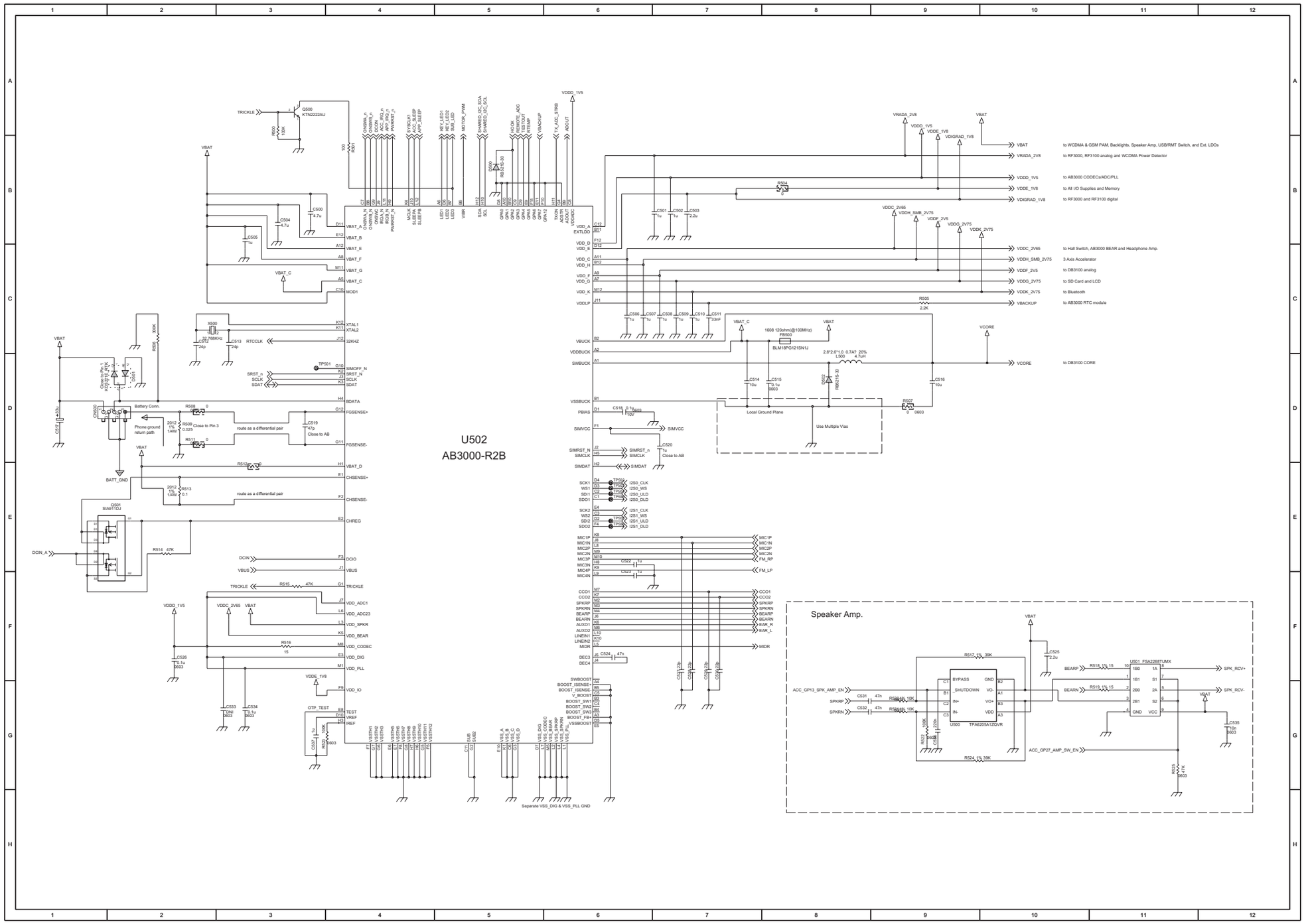

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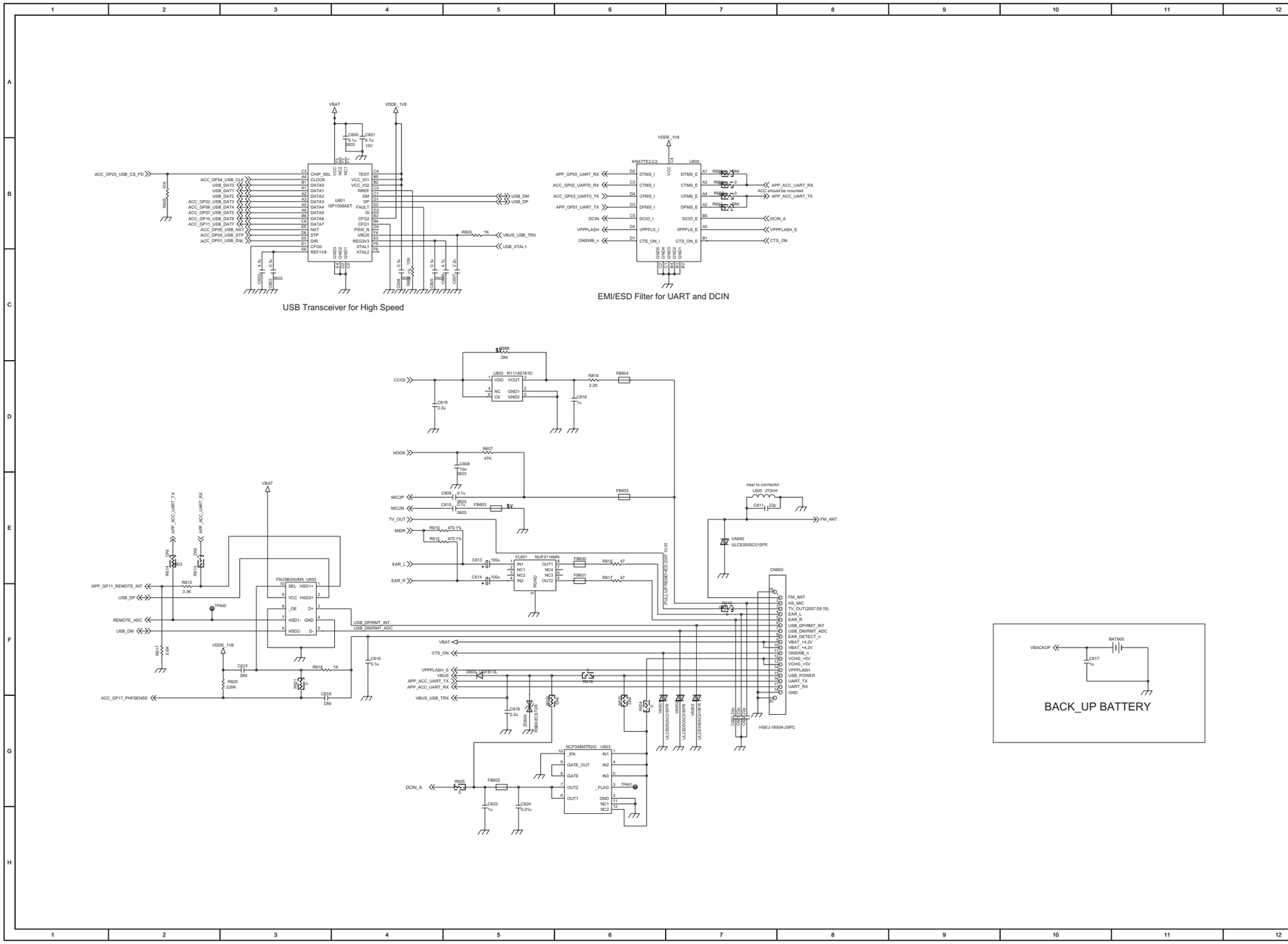
7. CIRCUIT DIAGRAM



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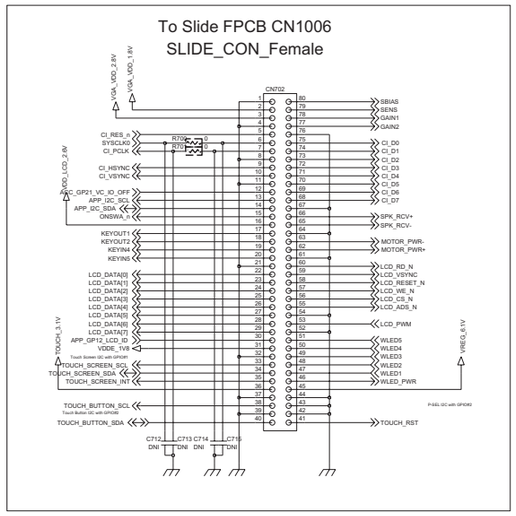
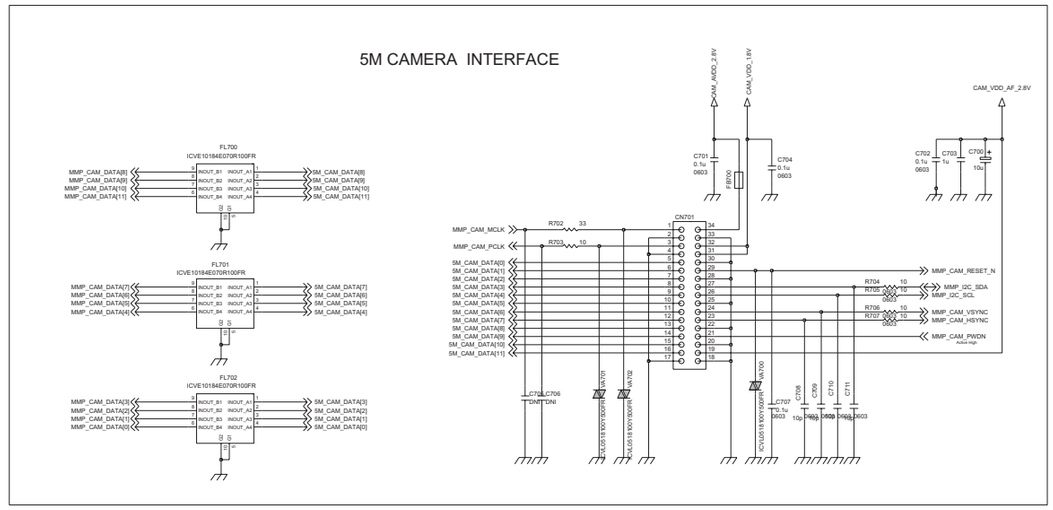
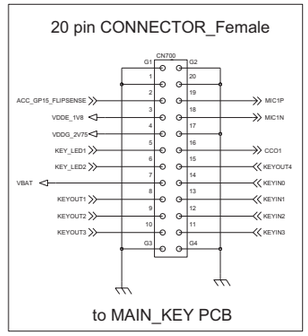
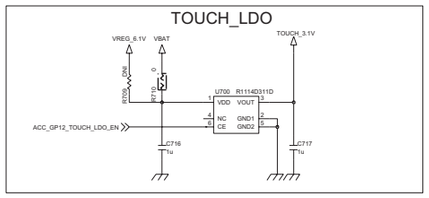
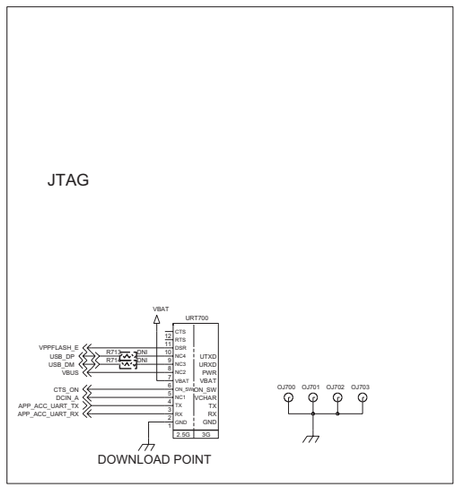
7. CIRCUIT DIAGRAM

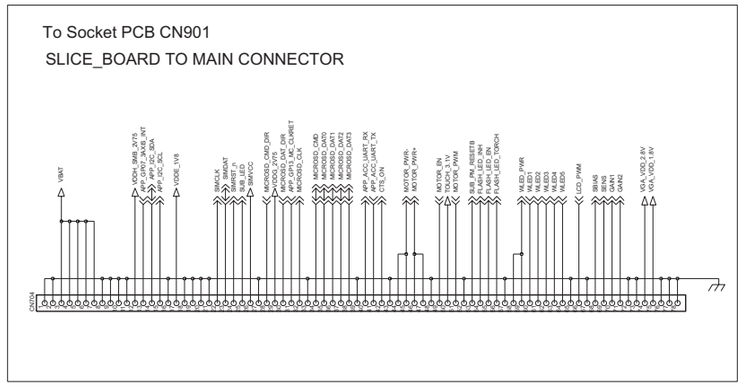


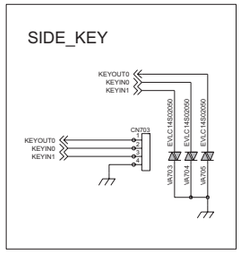


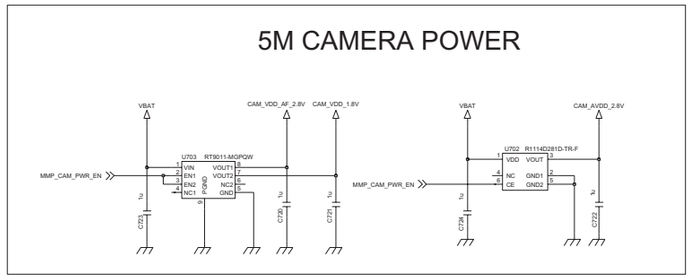


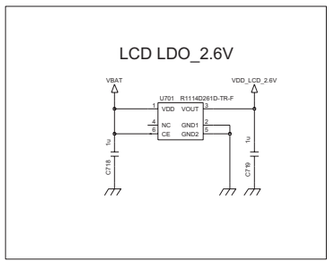


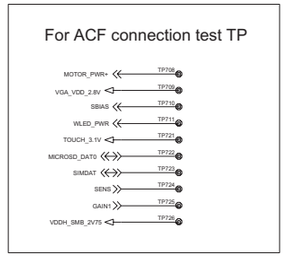












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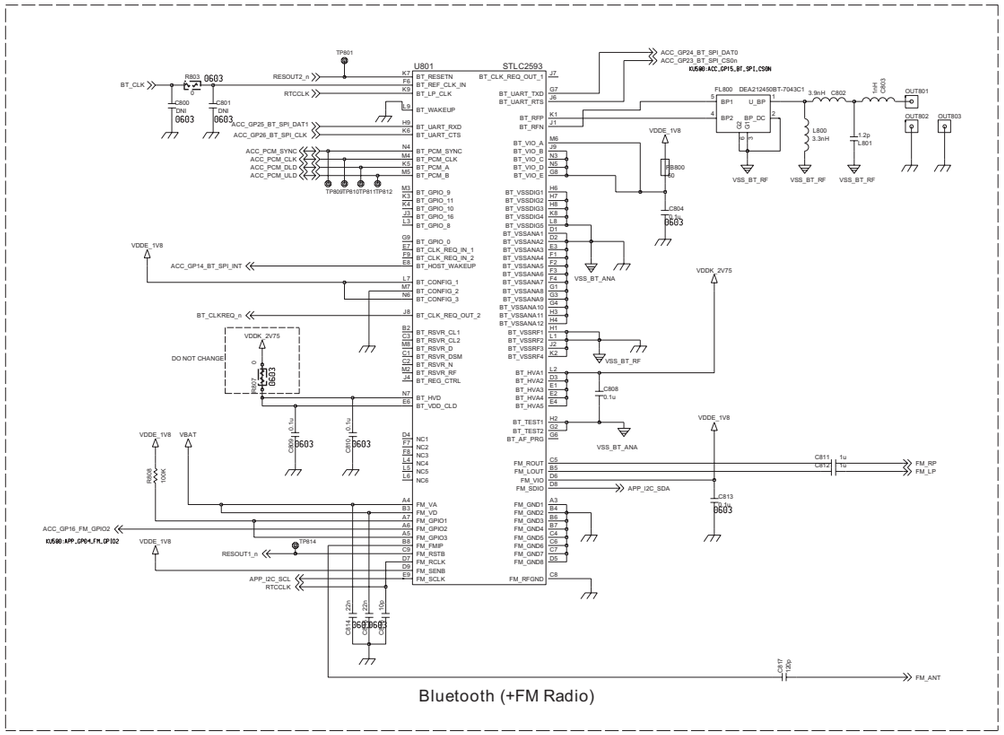
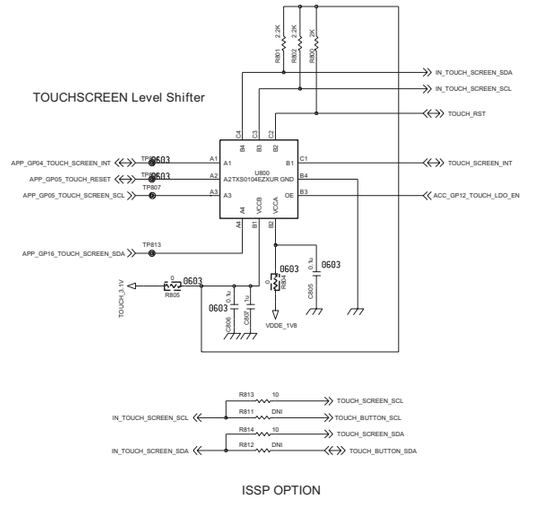
7. CIRCUIT DIAGRAM





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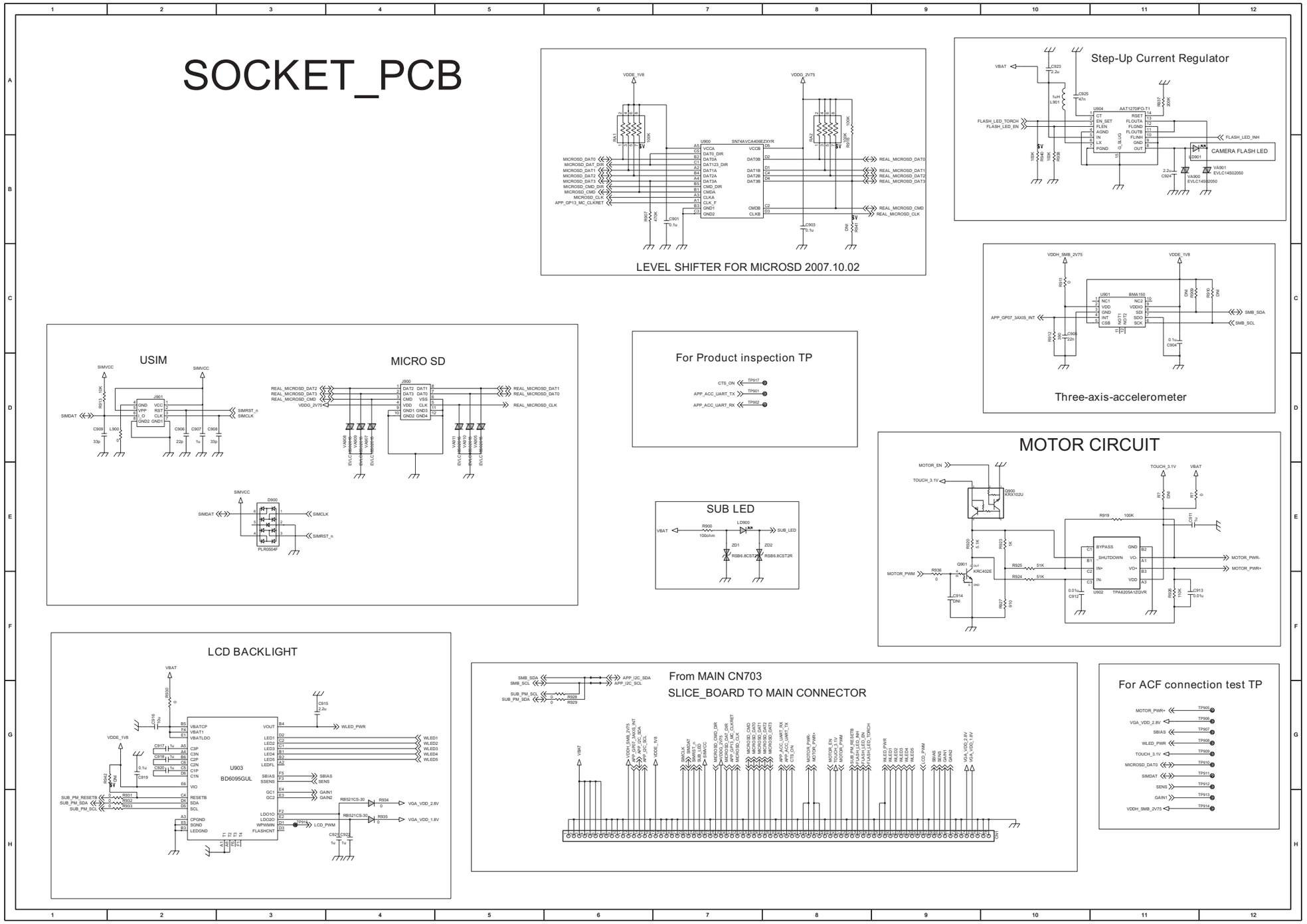

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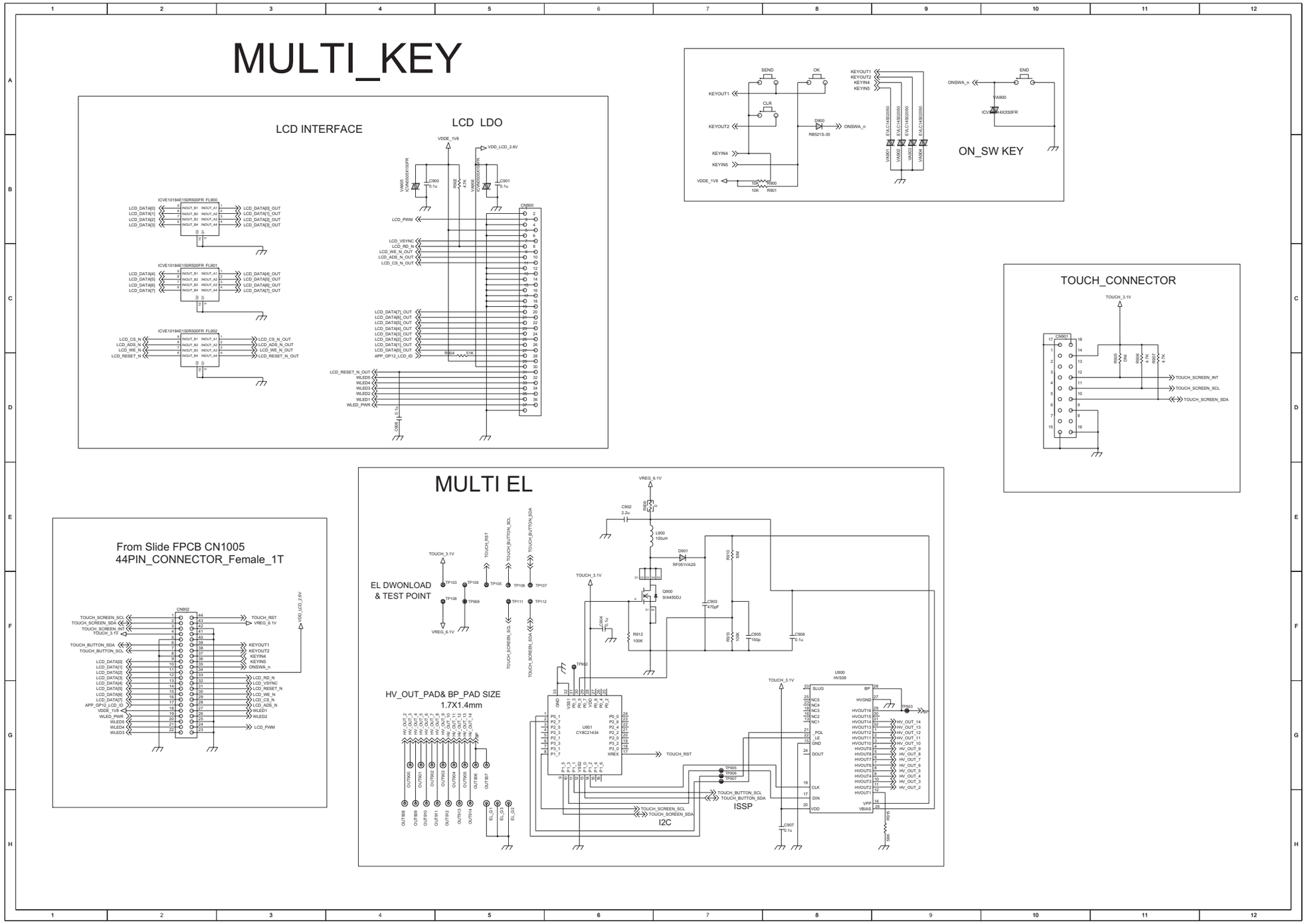
7. CIRCUIT DIAGRAM



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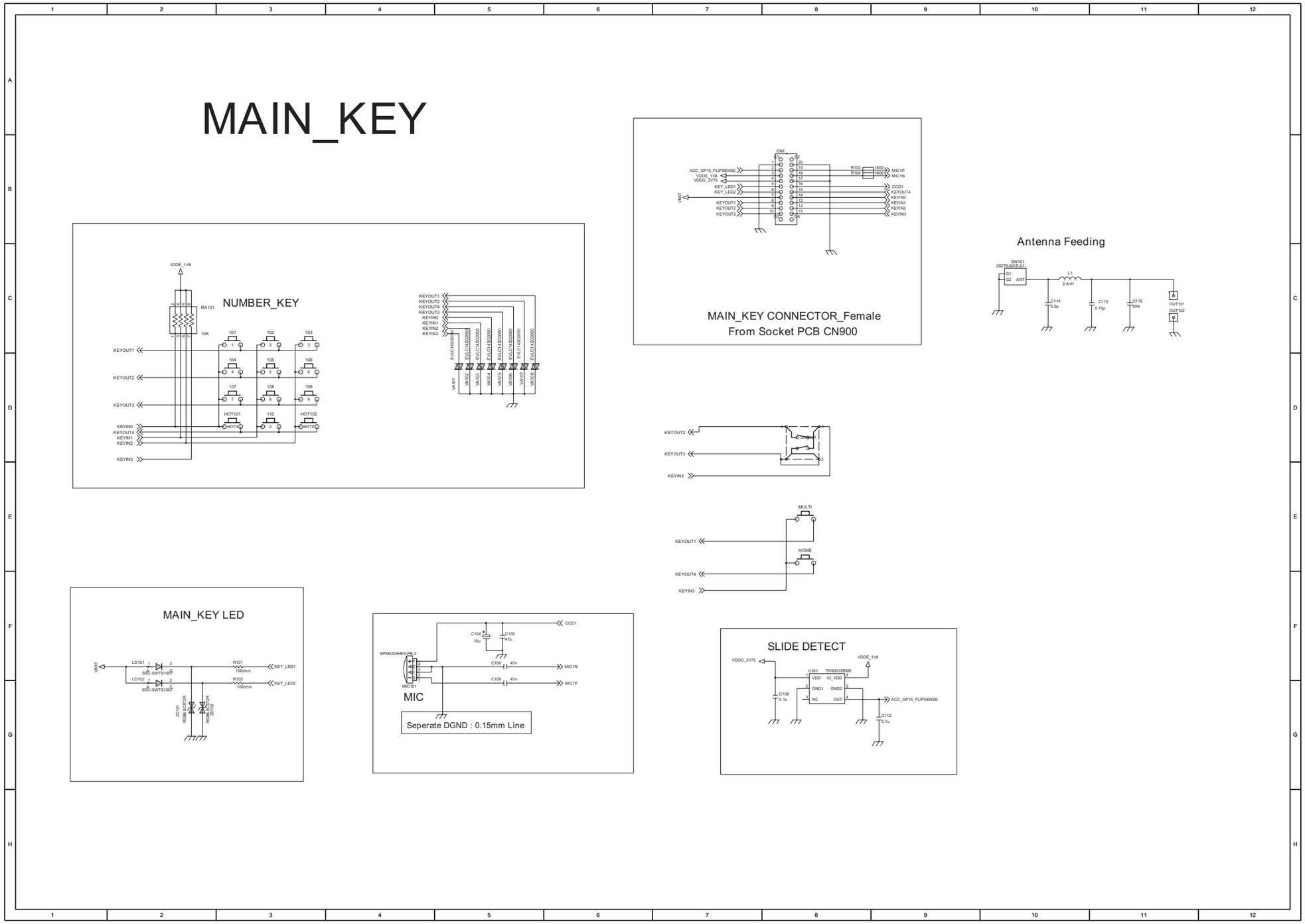

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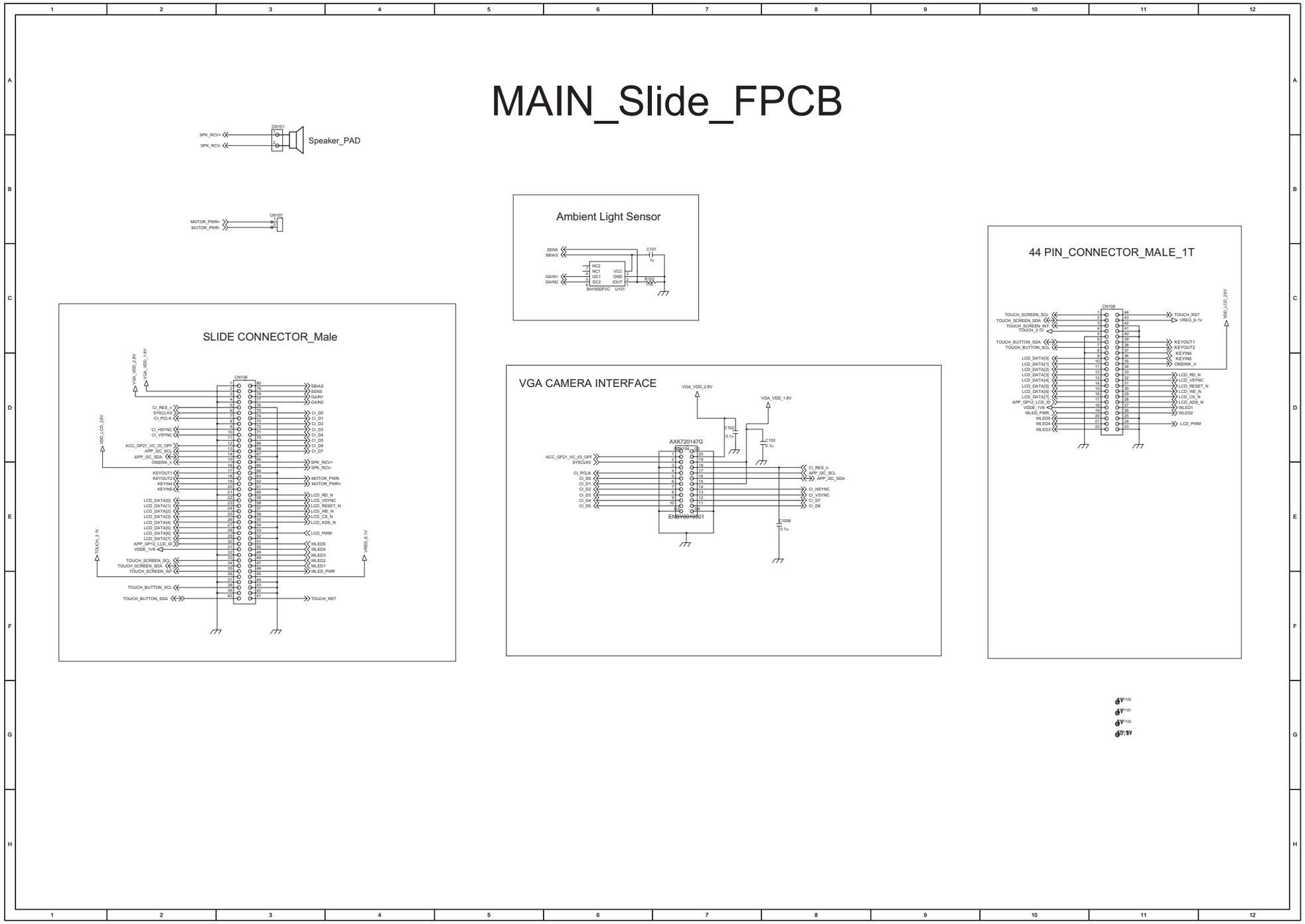

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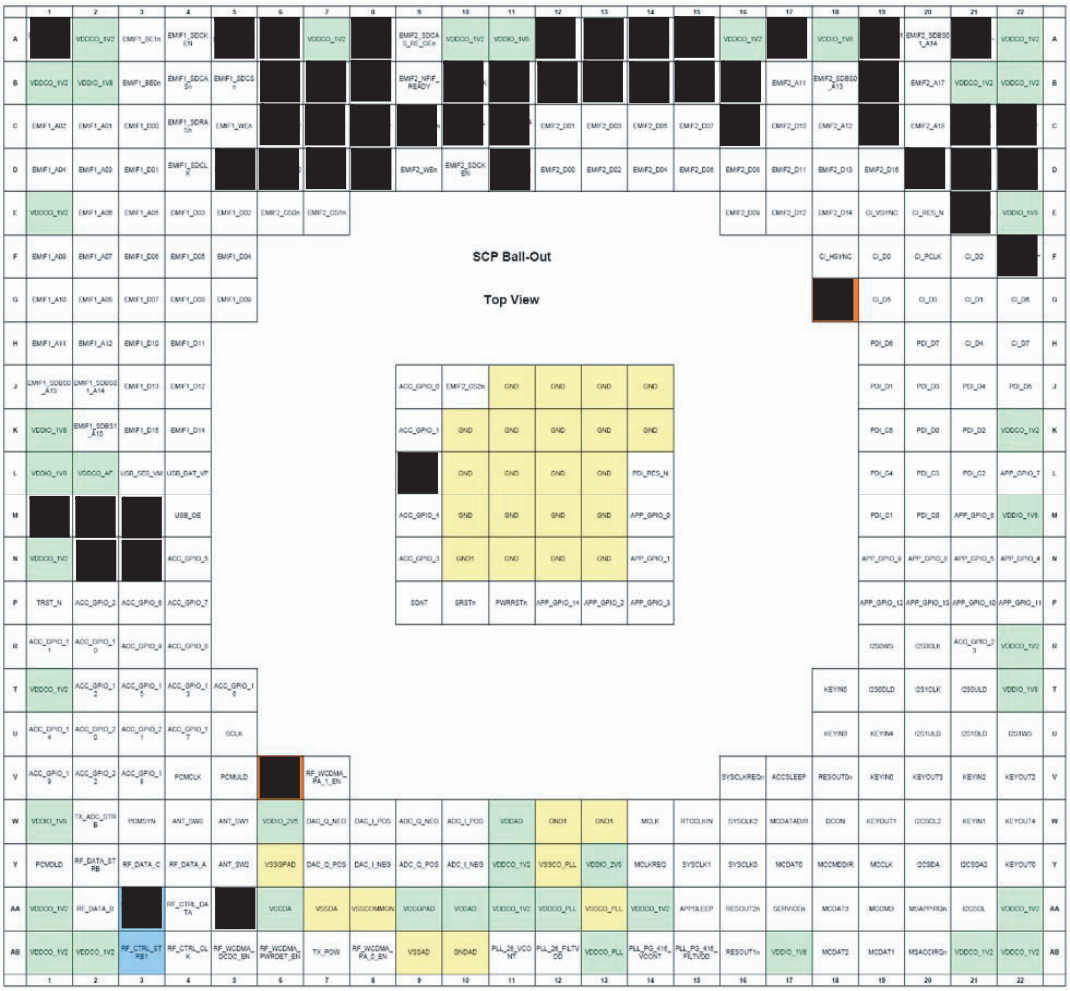
8. BGM Pin Map

DBB IC : DB3150 R3A (top view)



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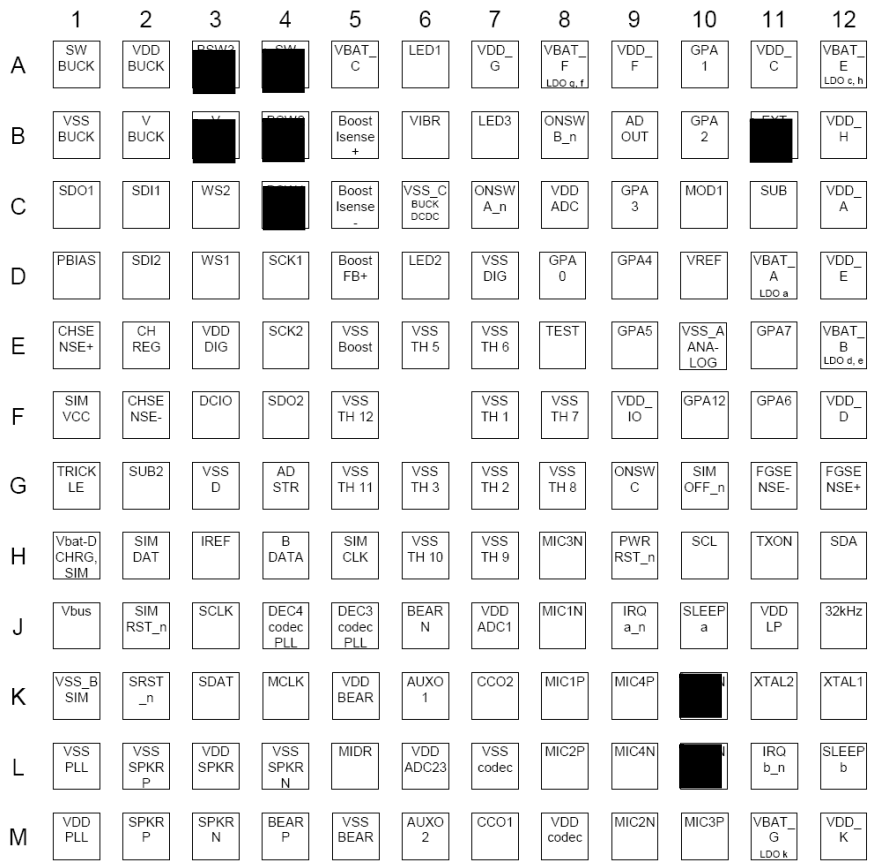
8. BGM Pin Map

ABB IC : AB3000 R2A (top view)



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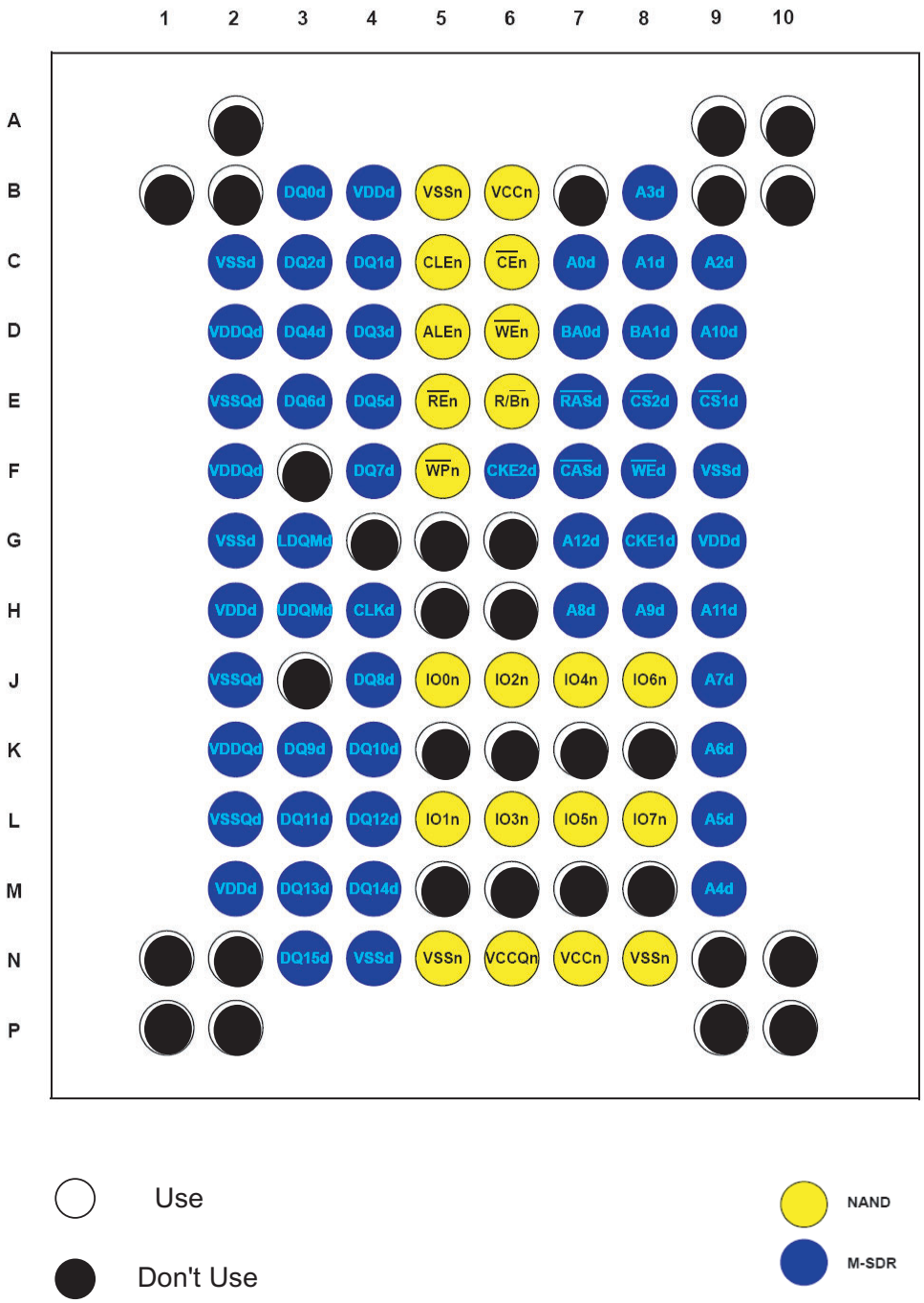
Memory IC : KAL00900BM-DJ55 (top view)



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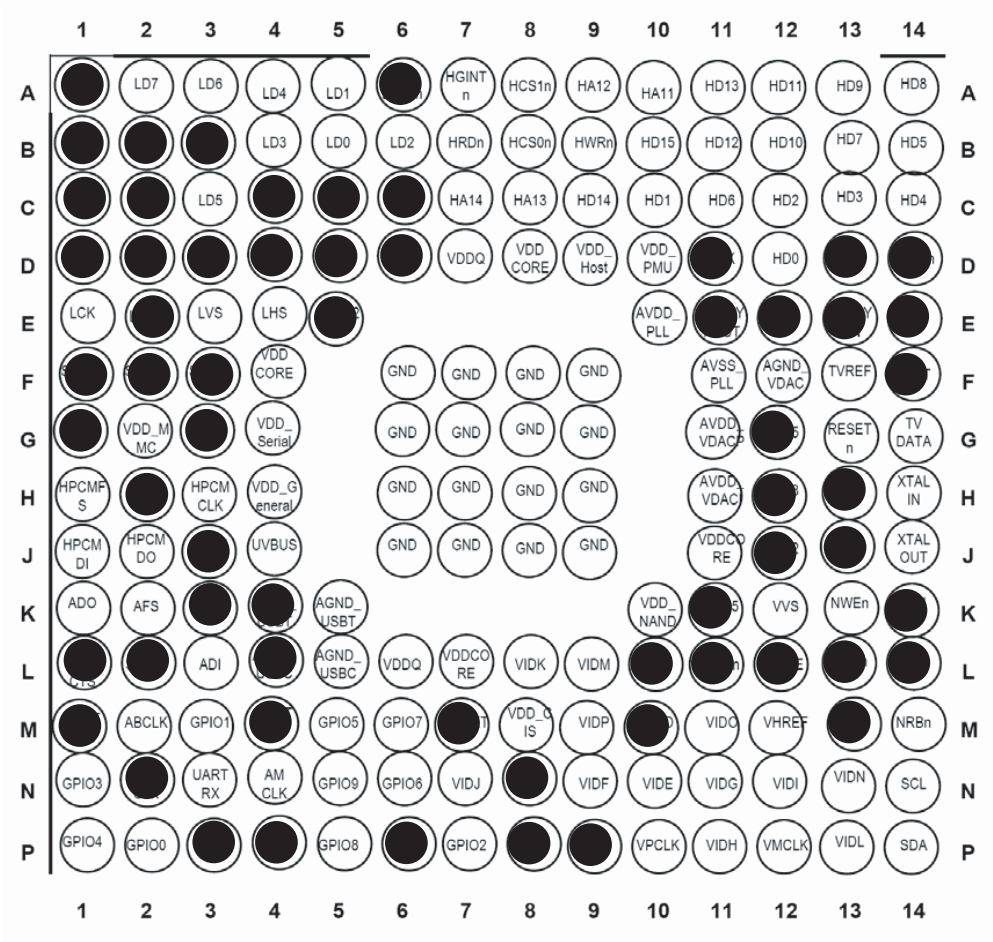
8. BGM Pin Map

ZORAN IC : ZR3453X (top view)



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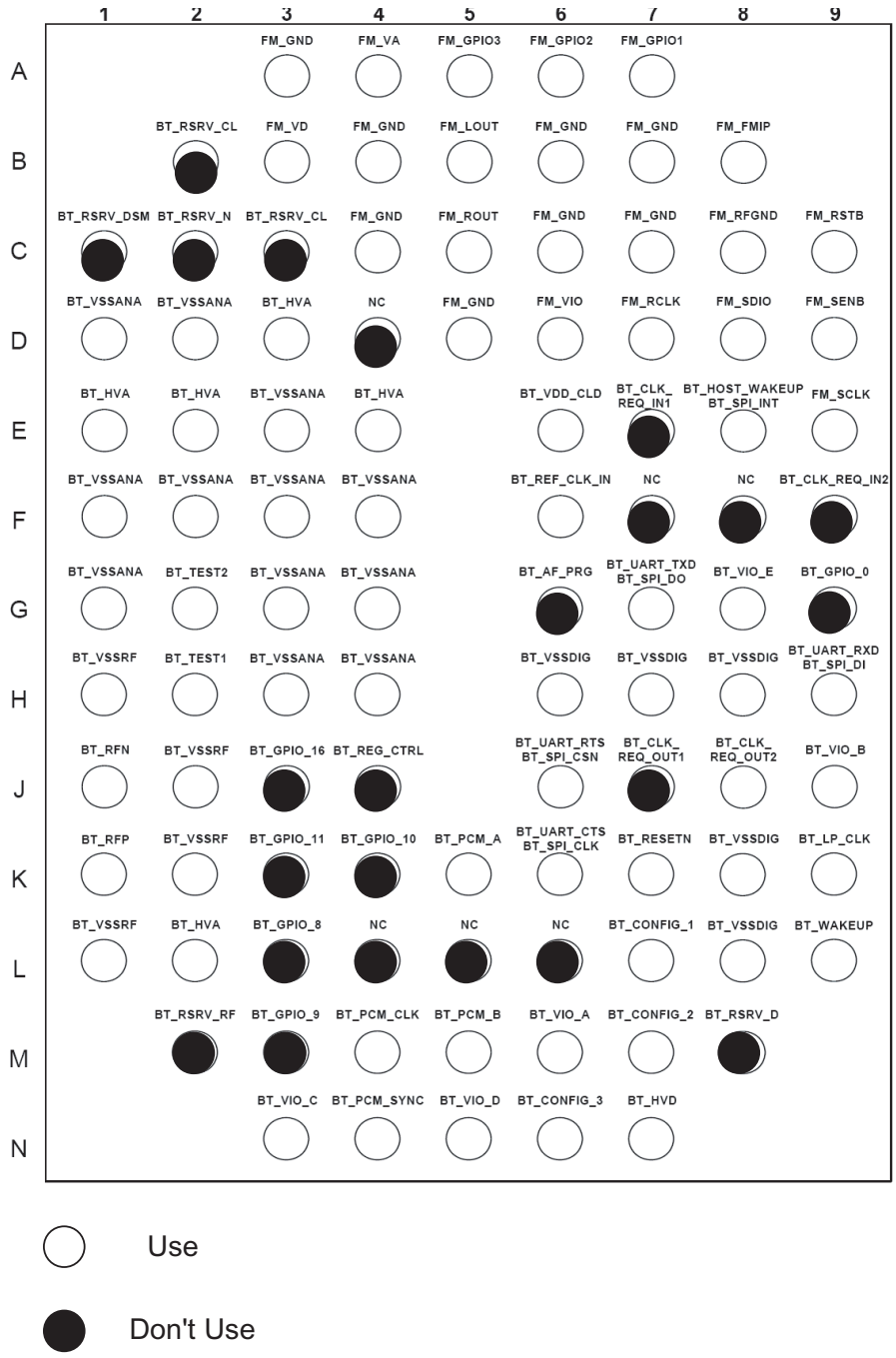
Bluetooth IC : STLC2593 (top view)



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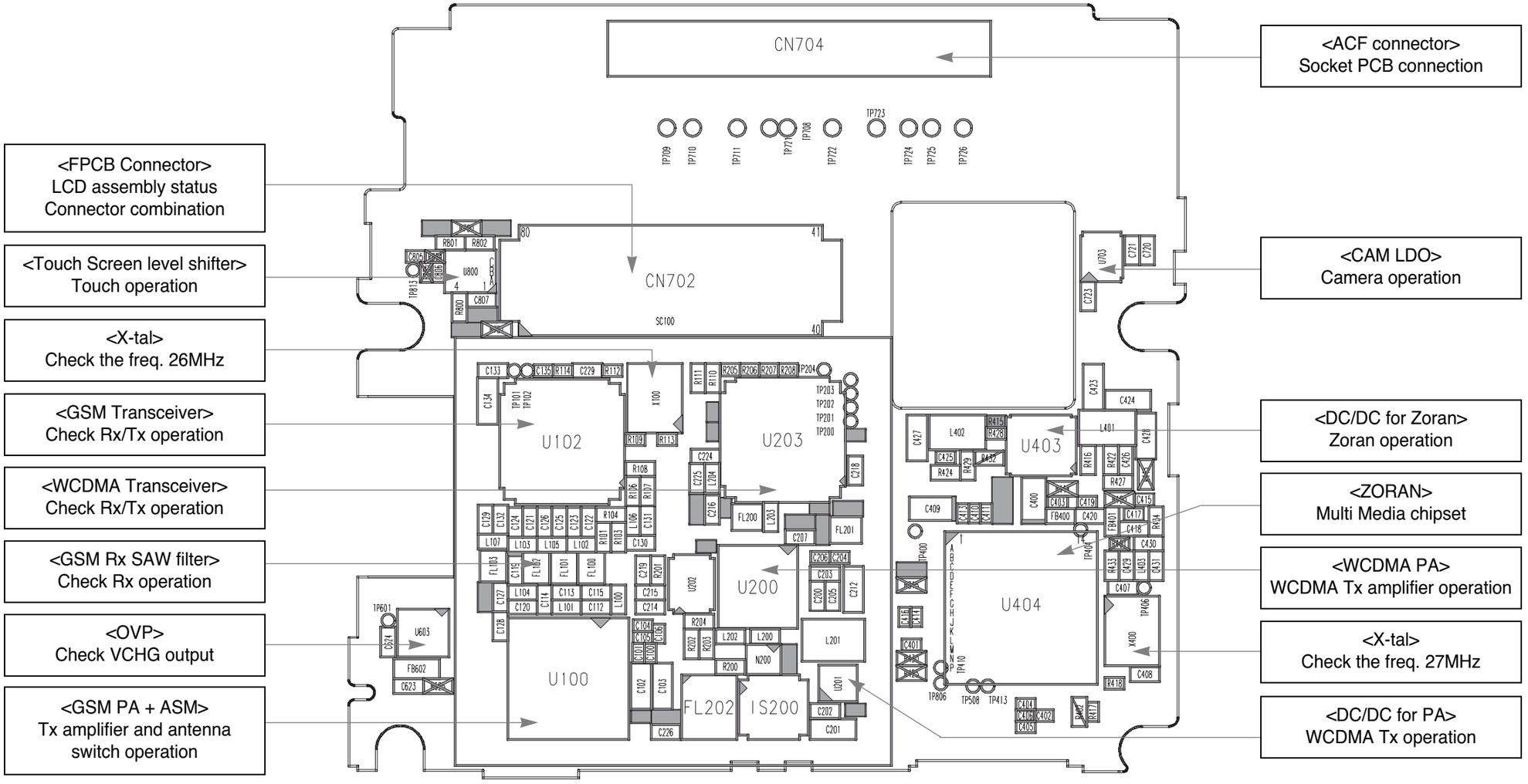
9. PCB LAYOUT



KF750/KF755-MAIN-SPFY0174201-1.0-TOP

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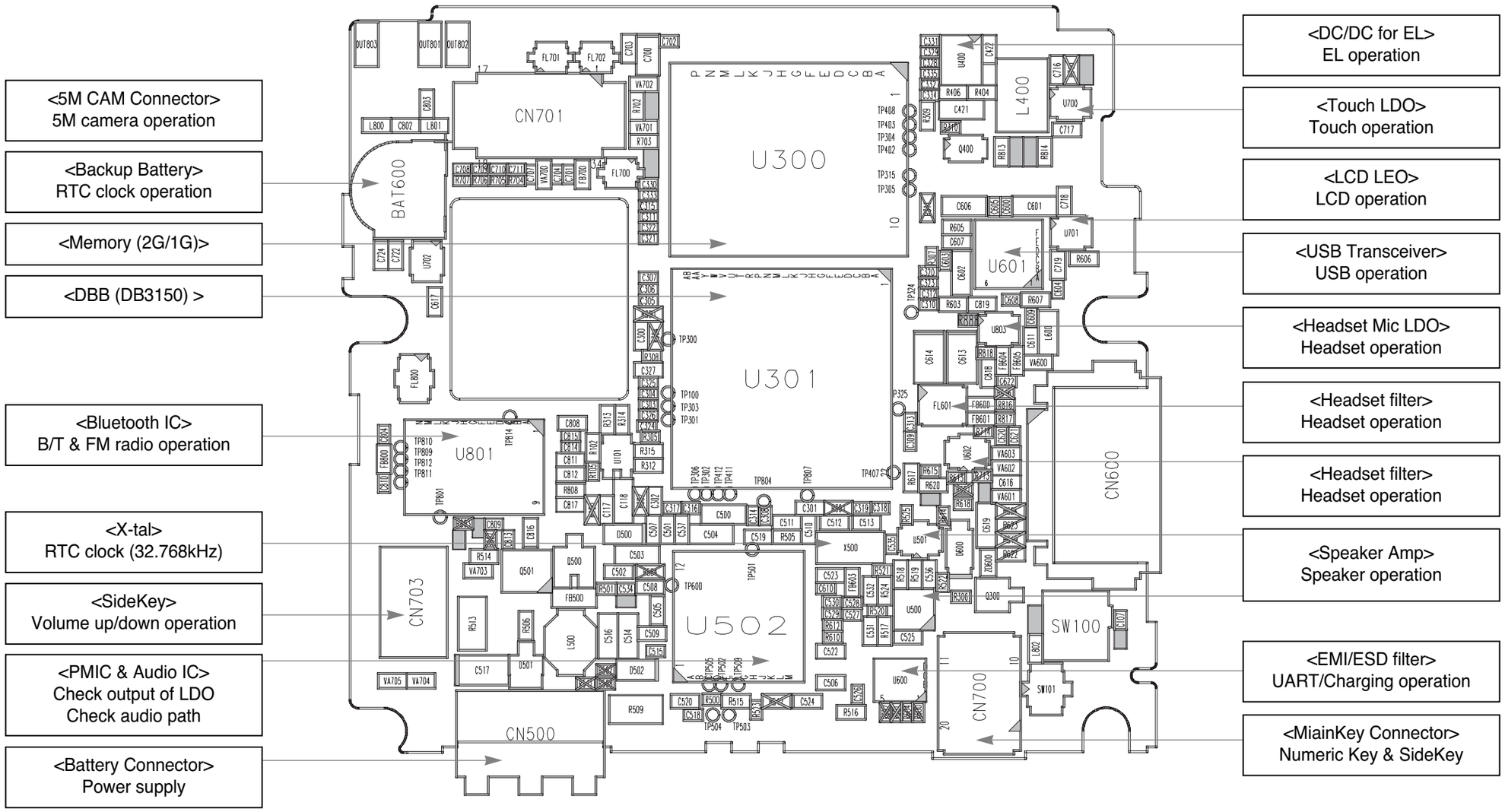

KF750/KF755-MAIN-SPFY0174201-1.0-BTM

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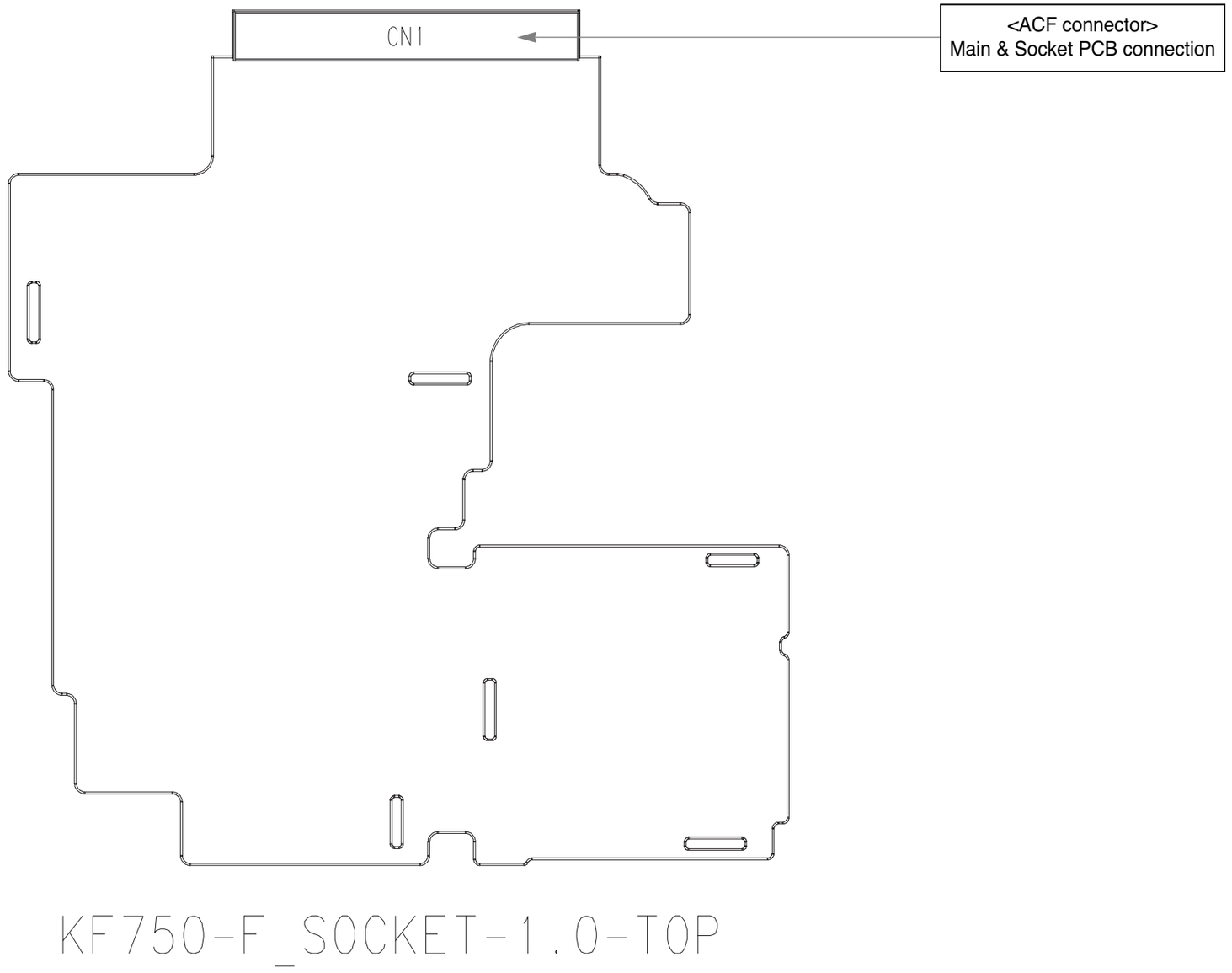

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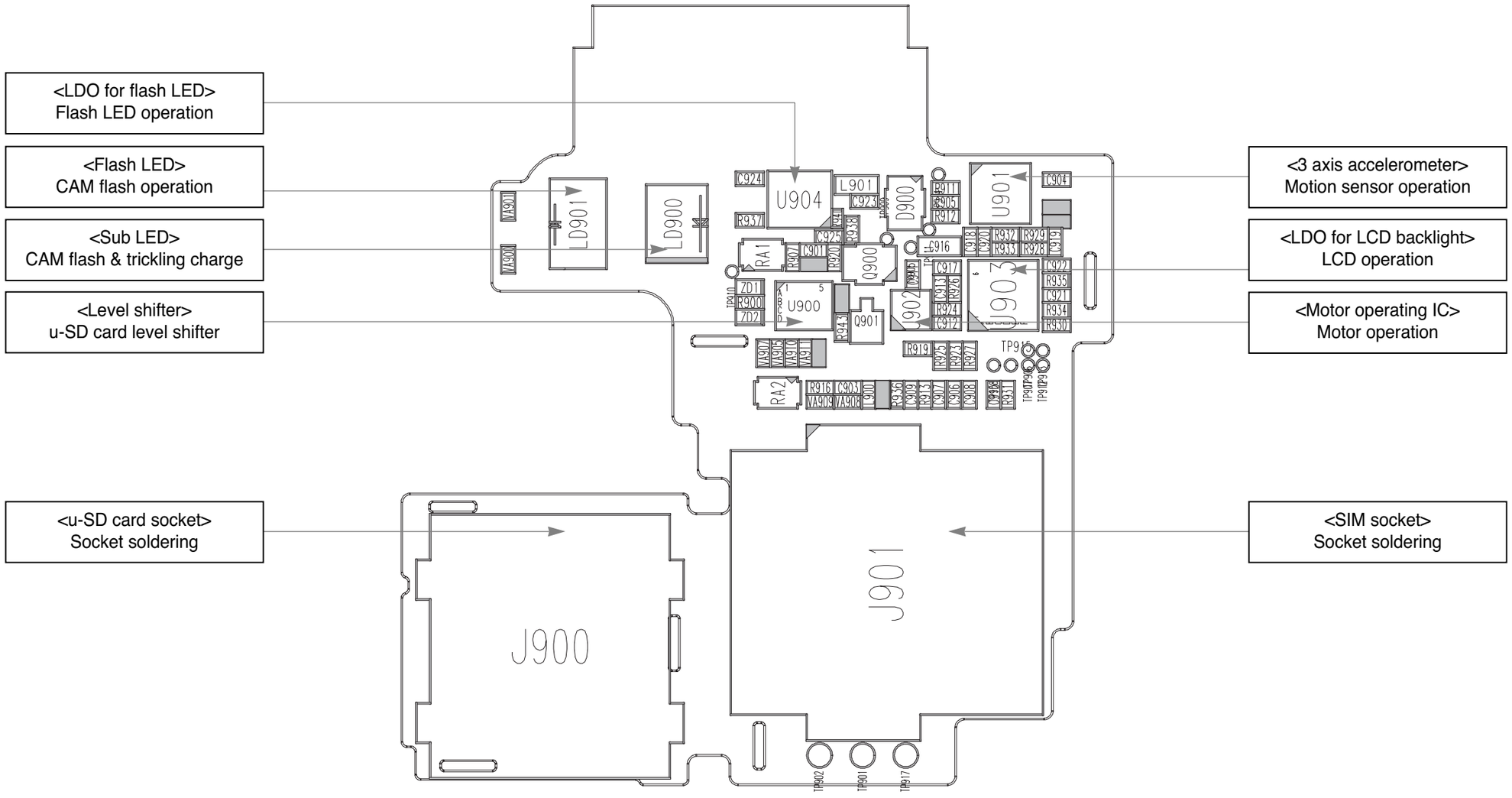

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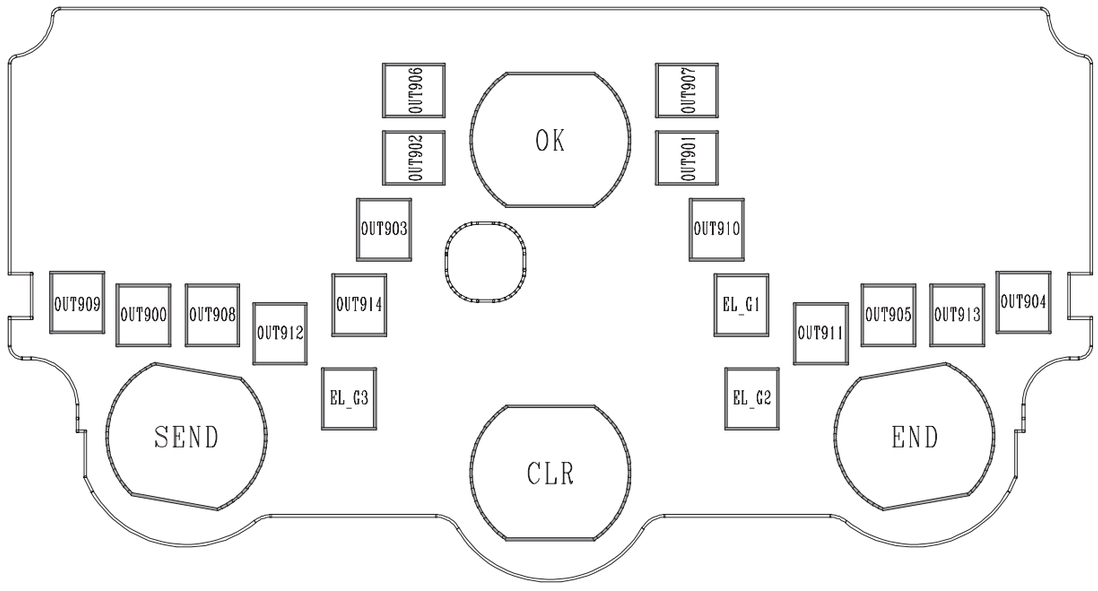

KF750-MULTIKEY-SPJY0046501-1.0

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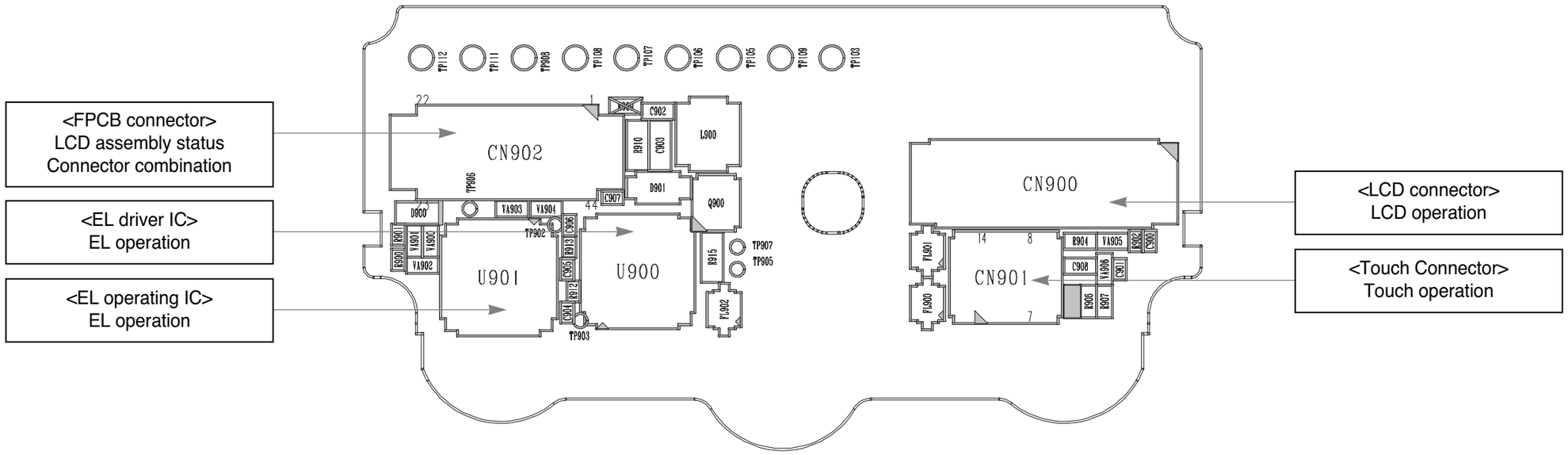

KF750-MULTIKEY-SPJY0046501-1.0

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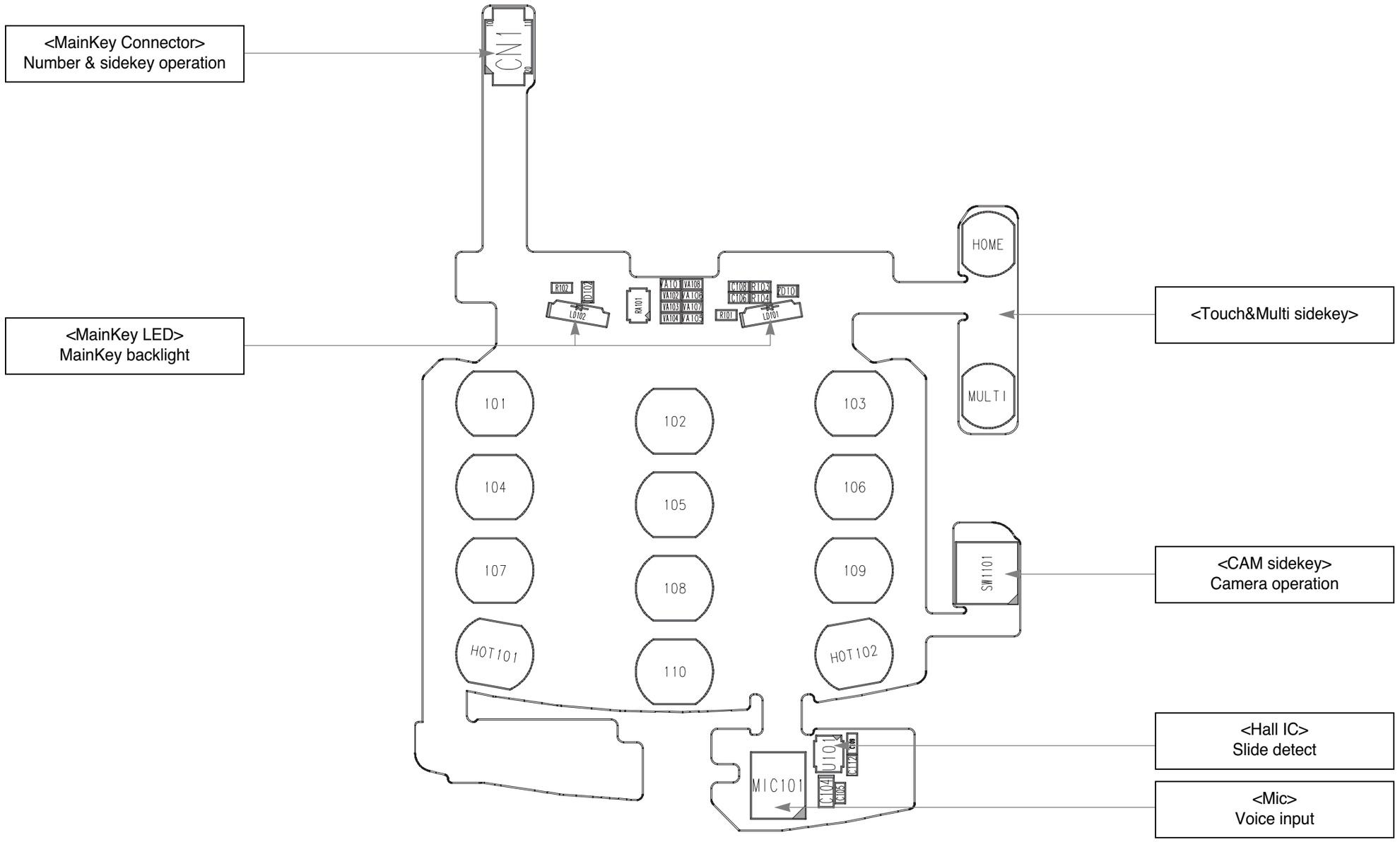

KF750-F_MAINKEY-SPCY0110101-1.0-TOP

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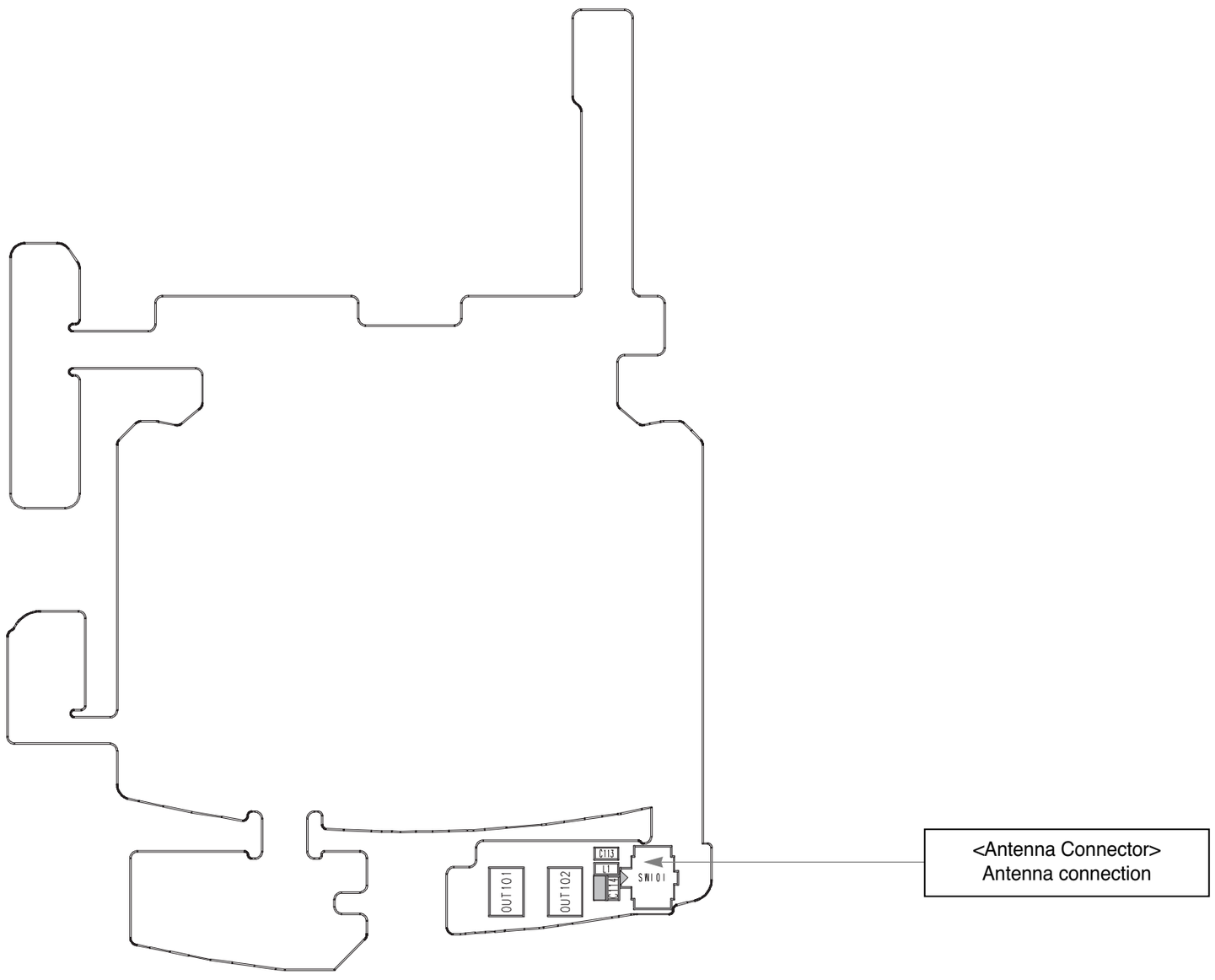

KF750-F_MAINKEY-SPCY0110101-1.0-BTM

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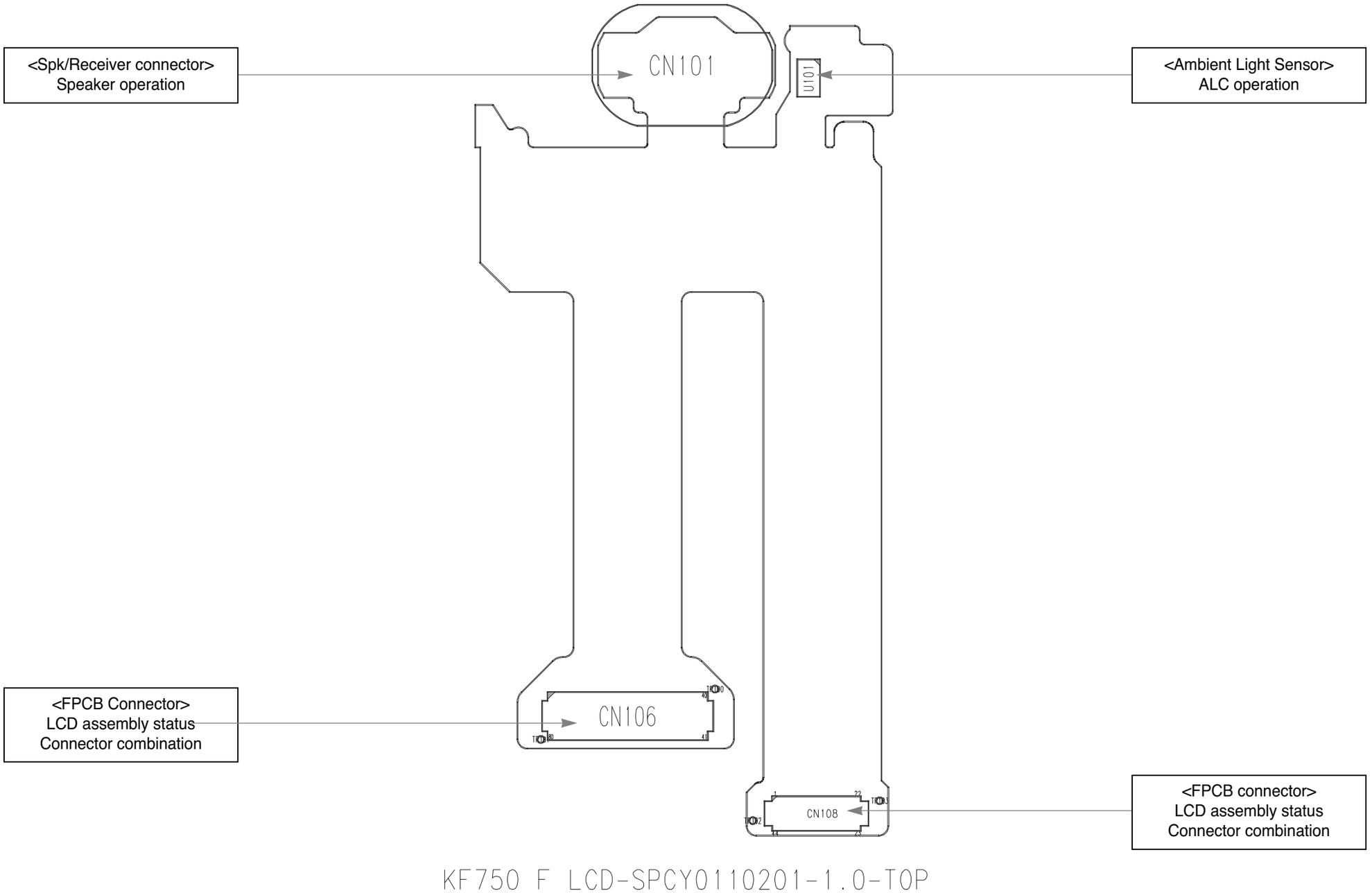

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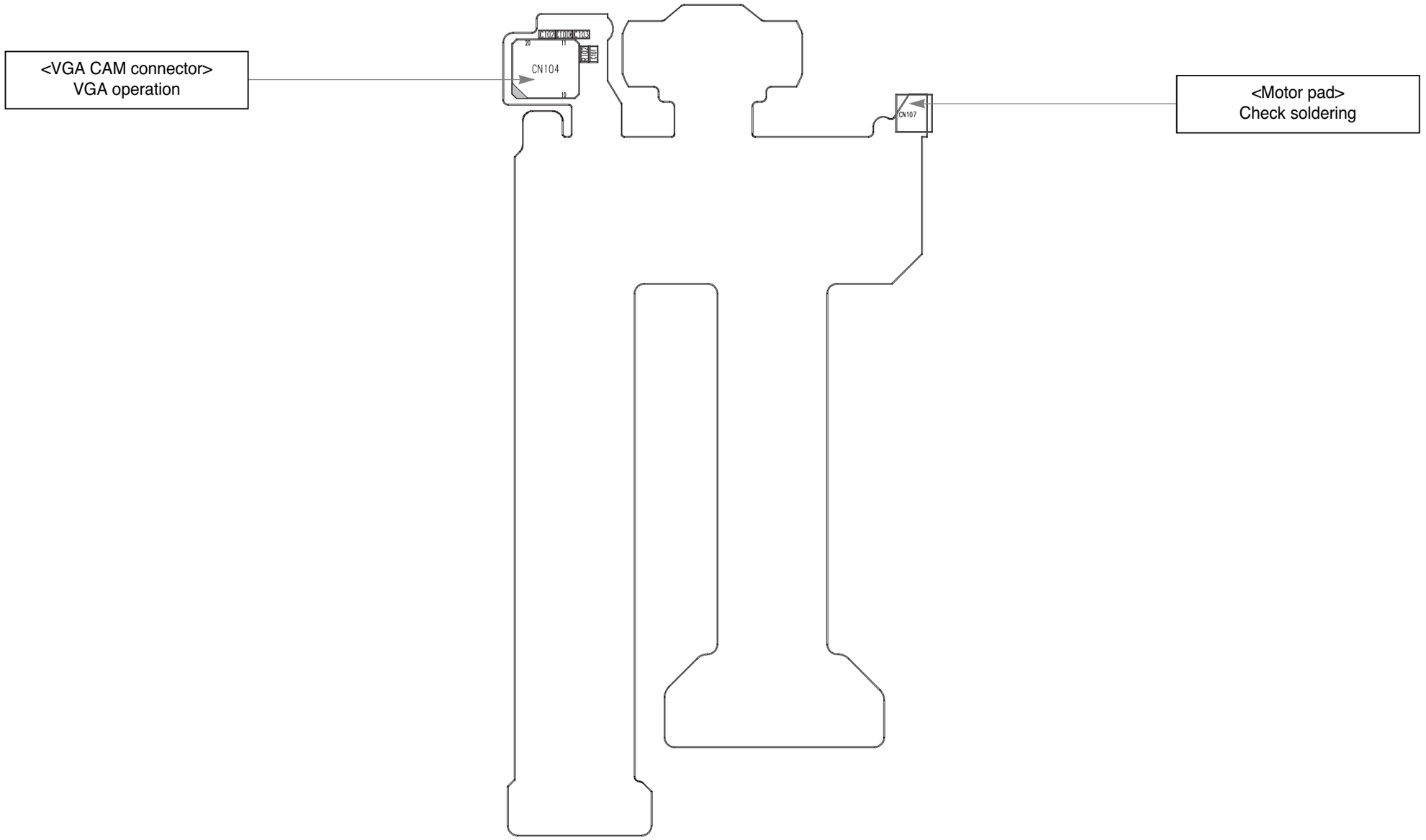

KF750 F_LCD-SPCY0110201-1.0-BOTTOM

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10. Calibration

10.1 General Description

This document describes the installation and software usage for the calibration of LG°Øs GSM/GPRS/EDGE/WCDMA Multimedia Mobile Phone. The calibration menu and it°Øs result is displayed in PC terminal by Mobile phone.

10.2 Environment

10.2.1 H/W Environment

- PC with RS-232 Interface & GPIB card installed
- GSM/GPRS/EDGE/WCDMA Multimedia Mobile Set
- Agilent 8960 Series 10 E5515C Instrument (E1987A ver A.05.28)
- Tektronix PS2521G Power Supply or Agilent A66311B
- ETC (GPIB cable, Serial cable, RF cable, Power cable, Dummy battery)

10.2.2 S/W Environment

- National Instrument GPIB & VISA (ver 2.60 full) driver install
- Agilent 8960 VXI driver(E1960) install
- Hot Kimchi EXE files
- OS : Window98, Window2000, WindowXP

10.2.3 Configuration Diagram of Calibration Environment

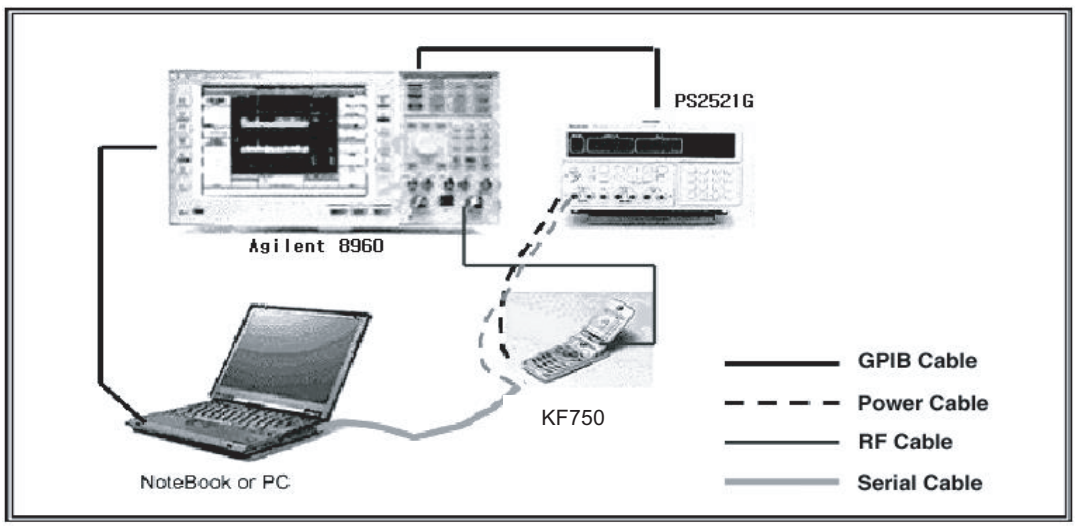

Figure 10-1. Calibration Configuration Figure

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10.3 Calibration Environment

Ensure that the following conditions are maintained throughout the duration of the tests and calibrations described within this document.

Parameter	Min	Typ	Max	Unit
Temperature	15	25	30	°C
Relative Humidity	20	40	75	%
Vbatt	3.6	3.7	3.8	V
Supply current	0		3	A

Table 10-1. Nominal Environmental Test Conditions

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10.4 Program Operation

10.4.1 Hot Kimchi Program Overview

When trying to calibrate the mobile phone, the service engineers make a configuration of calibration environment like Figure10-1. And if you finish making configuration, please execute the Hot Kimchi program. See Figure10-2.

Hot Kimchi supports following functions.

- Calibration of EGSM 900, DCS 1800, PCS1900, and WCDMA
- Instrument (Agilent8960, Tektronix PS2521G) control
- UART communication with mobile phone

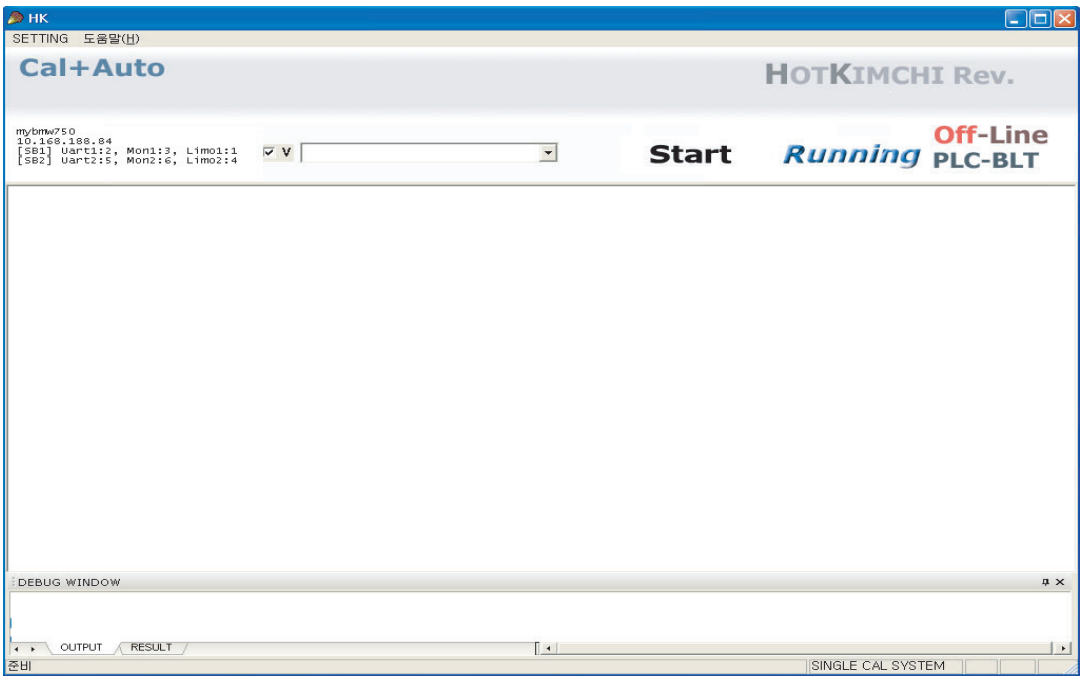

Figure 10-2. Hot Kimchi Window

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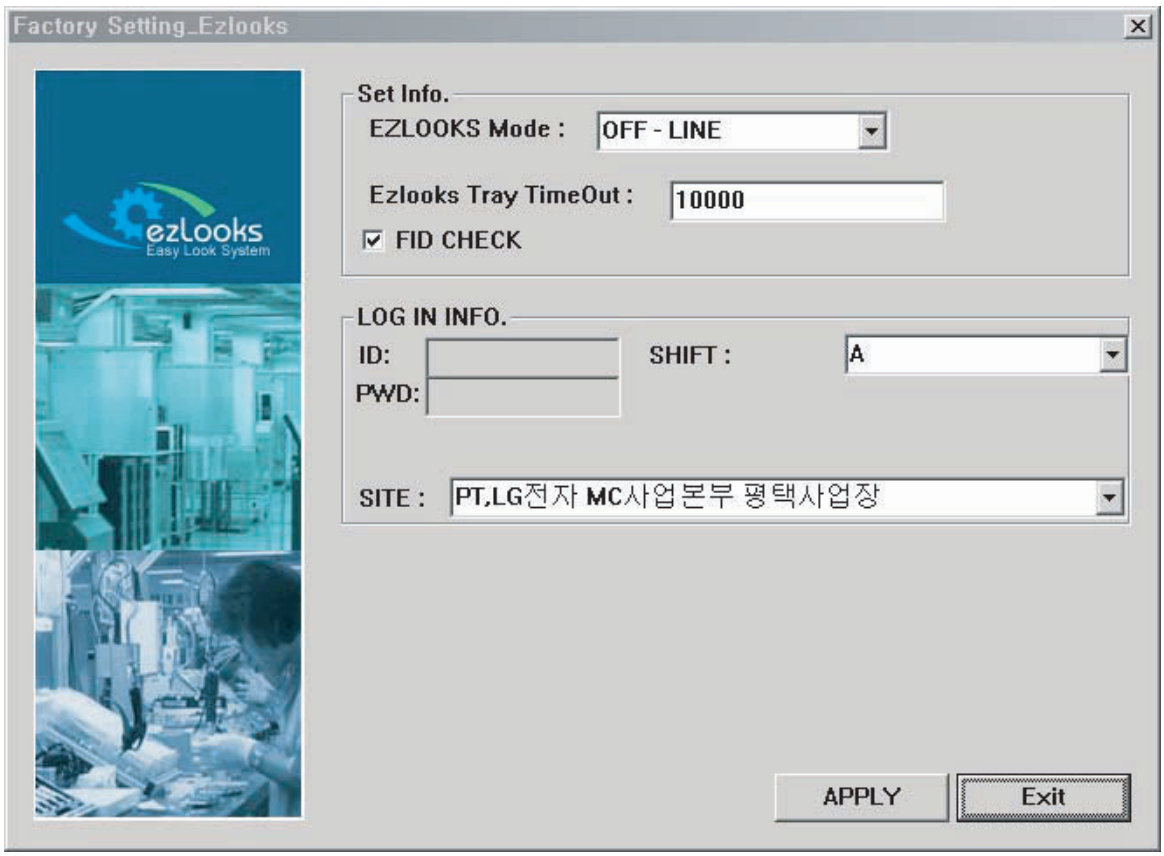
10.4.2 Setting

Select a ezlooks

Select Off-line in the EZLOOKS MODE.



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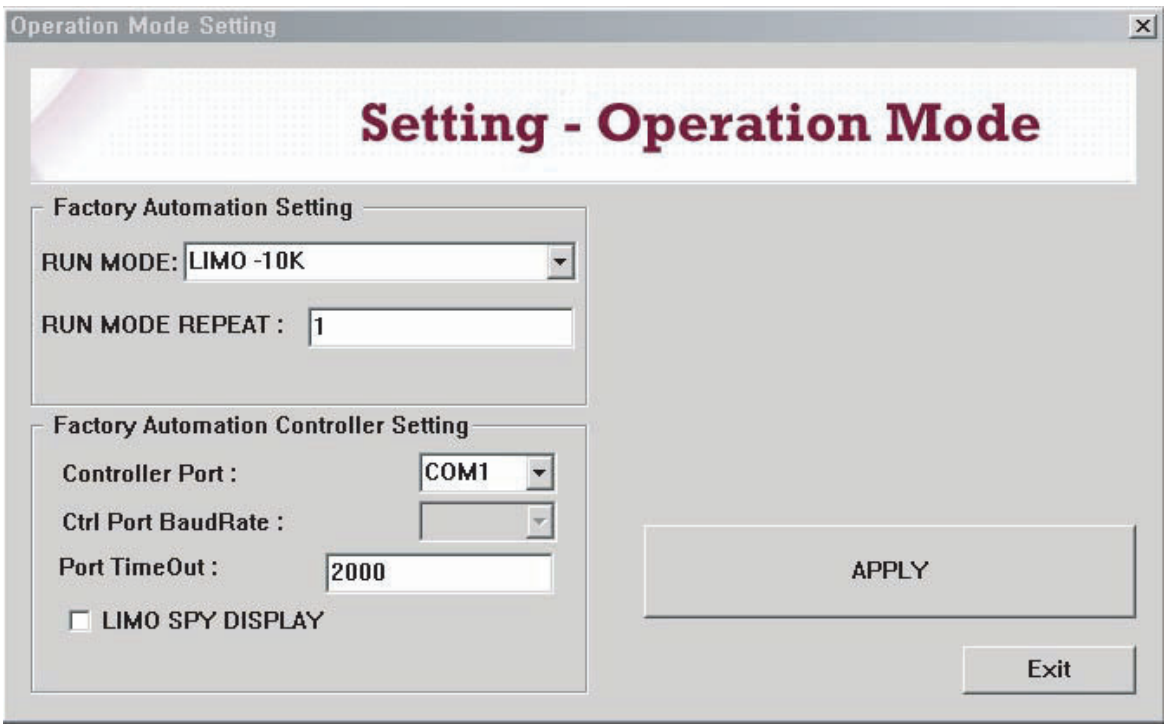
Select a Line System

Select Manual in the RUN MODE.

Select your com port appropriately.



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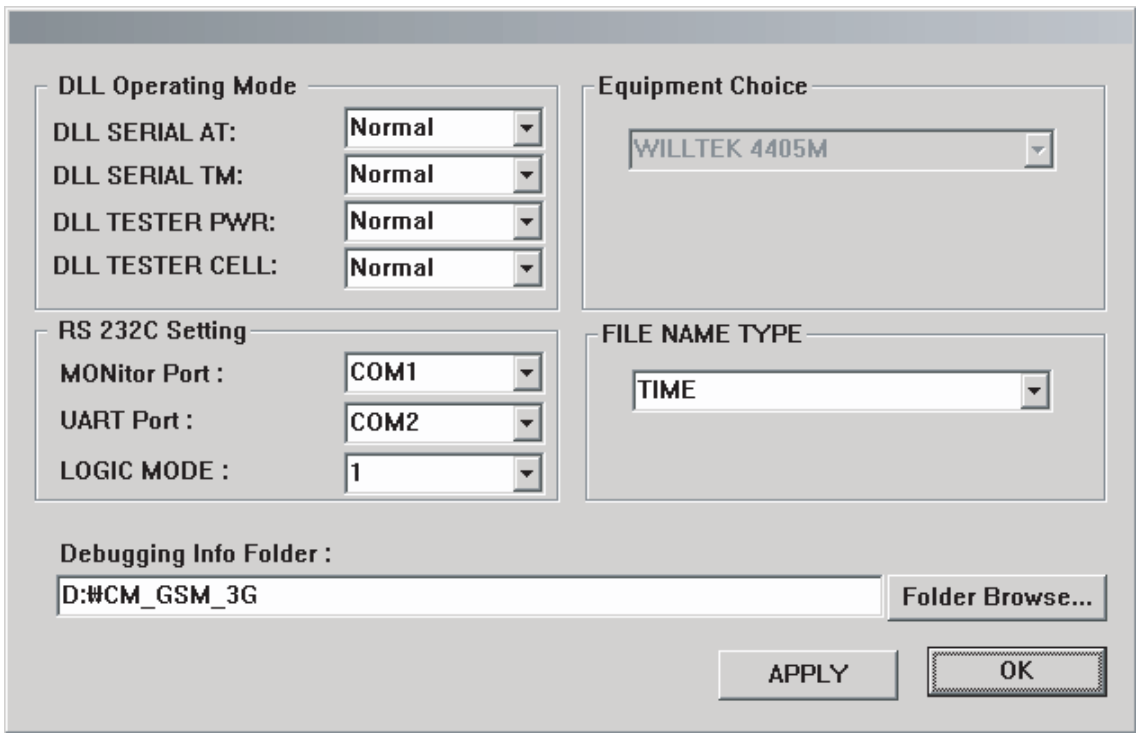
Select a Logic Operation

Select Logic Mode you want.

1. CAL only
2. AUTO only
3. CAL + AUTO

Select your com port appropriately.

MONitor Port is to communicate with 2.5G mobile phone



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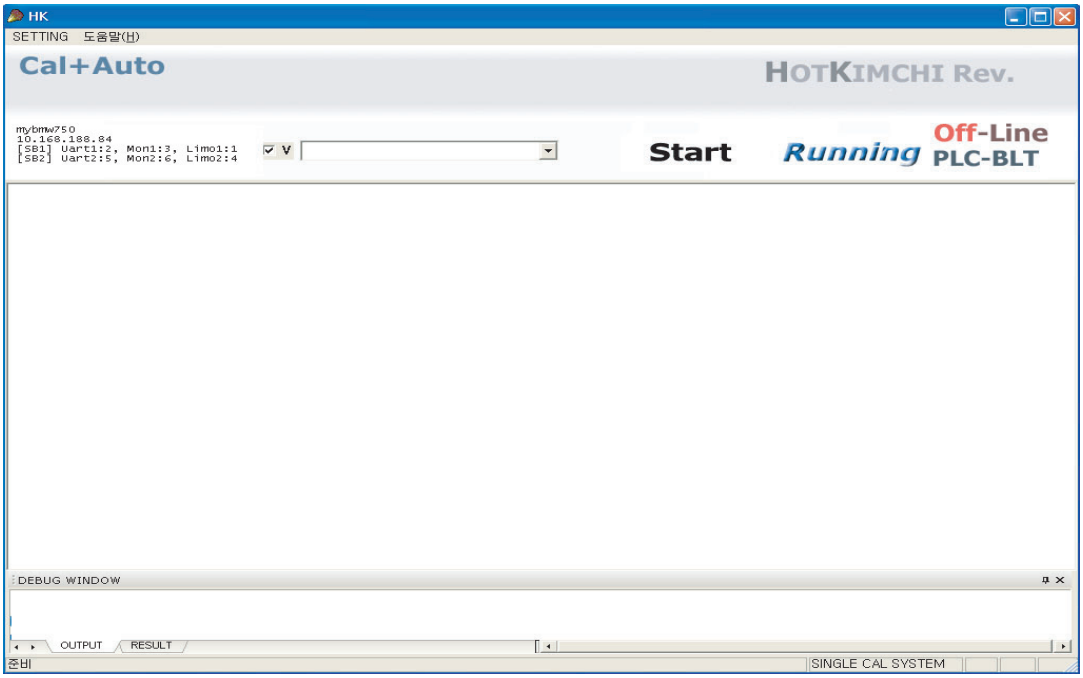
10.4.3 Calibration Procedure

Select a model name - KF750.

Click the START button.



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11. Stand-alone Test

11.1 General Description

1) General Description

This document describes the installation and software usage for the stand-alone test of LG's GSM/GPRS/EDGE/WCDMA Mobile Phone. The test menu and it's result is displayed in PC terminal by Mobile phone.

This test software was called "XCALMON(eXtended CALibration and MONitor program)". XCALMON can support both calibration and test.

This test software includes GSM, DCS, PCS, EDGE, and WCDMA Band test.

2) XCALMON Environment

H/W Environment

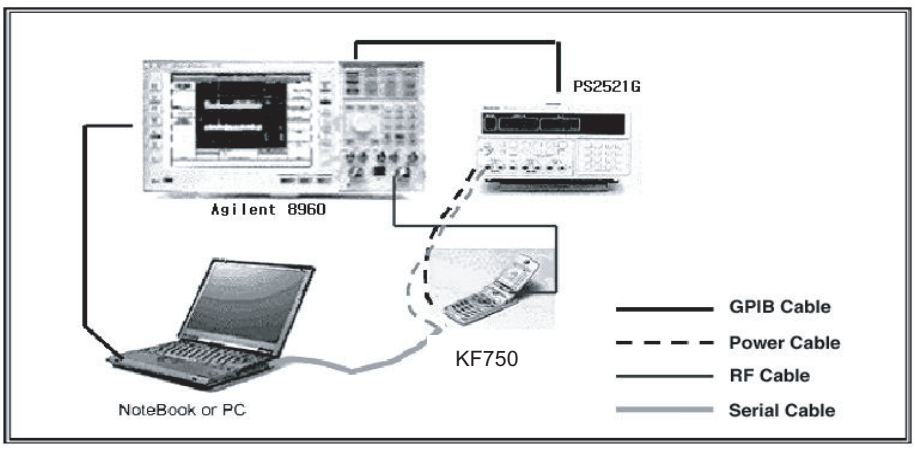
- PC with RS-232 Interface & GPIB card installed
- GSM/GPRS/EDGE/WCDMA Mobile Set
- Agilent 8960 Series 10 E5515C Instrument (E1987A ver A.05.28)
- Tektronix PS2521G Power Supply or Agilent A66311B
- ETC (GPIB cable, Serial cable, RF cable, Power cable, Dummy battery)

S/W Environment

- National Instrument GPIB & VISA (ver 2.60 runtime) driver install
- Agilent 8960 VXI driver(E1960) install
- XCALMON EXE files
- OS : Window98, Window2000, WindowXP
- Serial port configuration

  Baud rate: 115200 / Char length: 8bit / No Parity/ No Flow control / Stop bits: 1 bit

3) Configuration Diagram of Test Environment



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11.2 Program Operation

1) XCALMON Program Overview

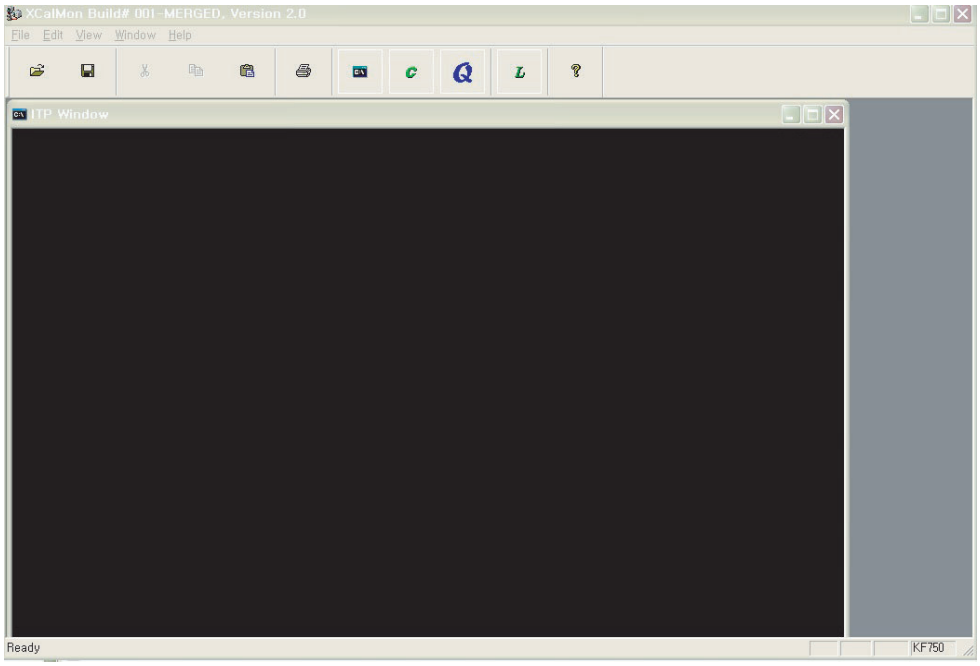
When trying to test the mobile phone, the service engineers make a configuration of calibration environment like previous figure. And if you finish making configuration, please execute the XCALMON program. Running the XCALMON program, you will see XCALMON program window like below.
If XCALMON program would be executed, it checks the connection of instruments and initializes them automatically.

XCALMON supports following functions.

- Test of EGSM 900, DCS 1800, PCS1900, GSM850 and WCDMA
- Instrument (Agilent8960, Tektronix PS2521G) control
- UART communication with mobile phone

XCALMON has three windows and each window support different function.

- Command window which supports interactive ITP commands like Hyper terminal
- Calibration tree window
- Quick Command mode window



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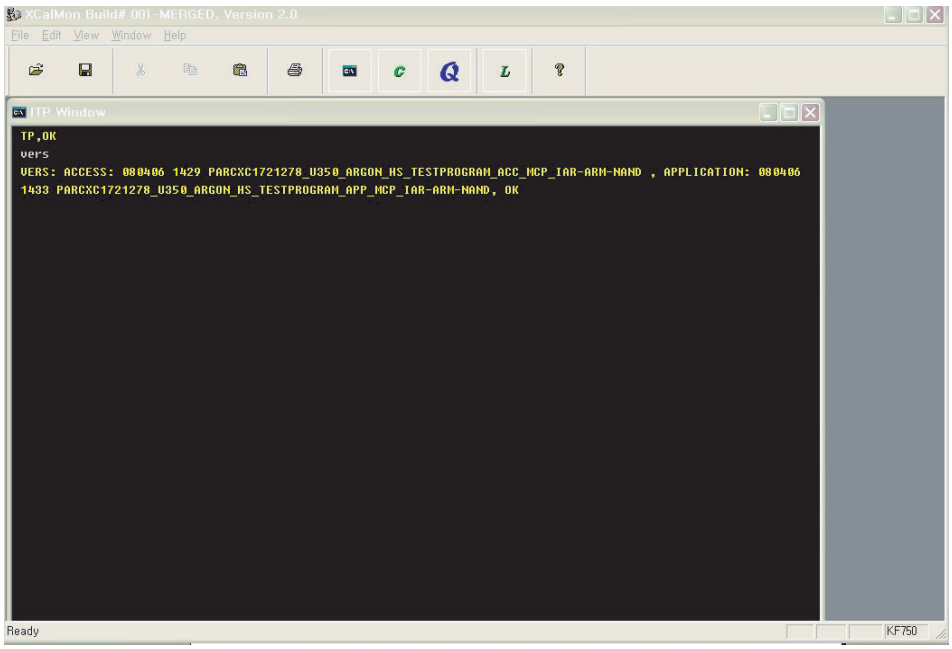
2) XCALMON Icon Description

A. DOS Window Icon

When you click the DOS window icon, then you should see the ITP command window like DOS window of DOS-operating system. In ITP command window, you can communicate with a mobile phone which is running in ITP mode.

For example, if you will enter command “VERS” and enter the return key, you should get the response of the present running ITP version information from a mobile phone.



XCALMON ITP Command Window

B. Calibration Tree Window Icon

When you click the calibration window icon “C”, then you see the calibration tree window. That will be shown all calibration items. If you want to calibrate a mobile phone for all calibration items, you should select ‘Calibration” and push “F4” button in your keyboard.

Also there are four tap view in calibration window.

- OUTPUT : All results of calibration. See figure 9-4
- STATUS : Summary of Test result
- INSTRUMENT : Control and view instrument connection status. See figure 9-5
- PC SETTING : Control and view UART connection status. See figure 9-6

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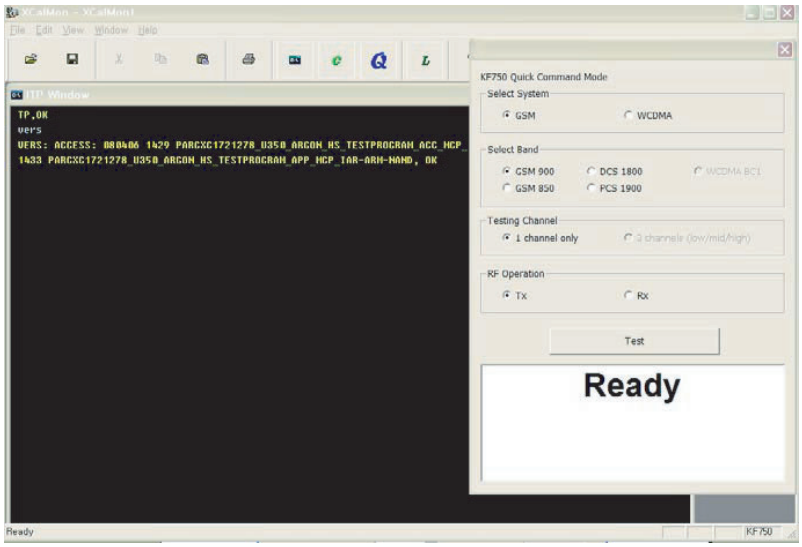
C. Quick Command mode window Icon

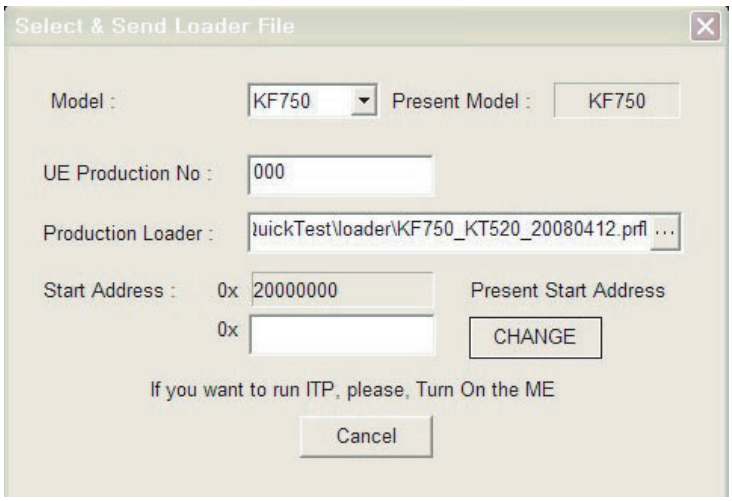
When clicking the Quick command mode window icon “Q”, then you find out the Quick Command mode window. That window is for test of the mobile phone.



XCALMON Quick Command mode Window

D. ITP Starting Window Using Production Loader

When clicking the ITP starting window icon “L”, then you find out the ITP starting window. That dialog window just waits for power-on of the mobile phone. When it will occur power-on, it automatically start ITP running.



XCALMON ITP Starting Window (Using Production Loader)

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11.3 Stand-alone Test

1) Test Procedure

Test procedure of XCALMON is the same as below procedure.

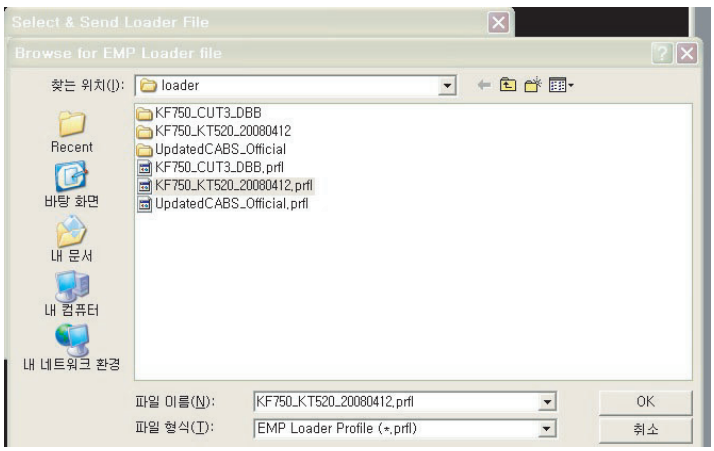
- Configuration of test environment
- Running ITP using preloader and production loaders
- Verification of stand-alone test by Quick Command mode

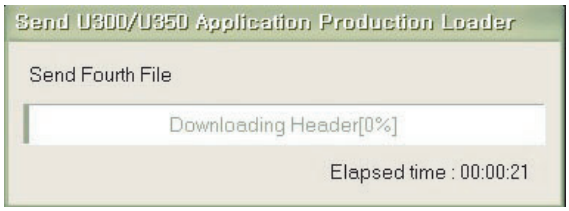
A. Configuration of test environment

Configure to test the mobile phone like 12.1. If configuration will be accomplished, XCALMON program will be started.

B. Running ITP Using Preloader and Production Loaders

If XCALMON will be executed, you should run ITP using “L” ITP starting icon at first.
Click the “L” icon, then you will see the ITP start window like 12-2 D.
When you will turn on the mobile phone, the loaders will be downloaded automatically like below figure and then it will execute the ITP at once.
4 loaders are needed and exists in the folder “loader”. And all you have to do is select the profile “KF750_KT520_20080412.prfl” If the ITP will operate normally, you should see the characters “TP, OK” in ITP command window like 12-2 A.





Loader downloading

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2) Test

If you want to test a mobile phone, click the Quick command mode icon “Q”.

A. Select System

You can select the GSM or WCDMA system.

B. Select Band

You can select the GSM quad band or WCDMA band.

C. Testing Channel

You can select only one channel.

D. RF operation

You can select Rx or Tx.

If you select all item and click test, you can find out result “pass or fail”.

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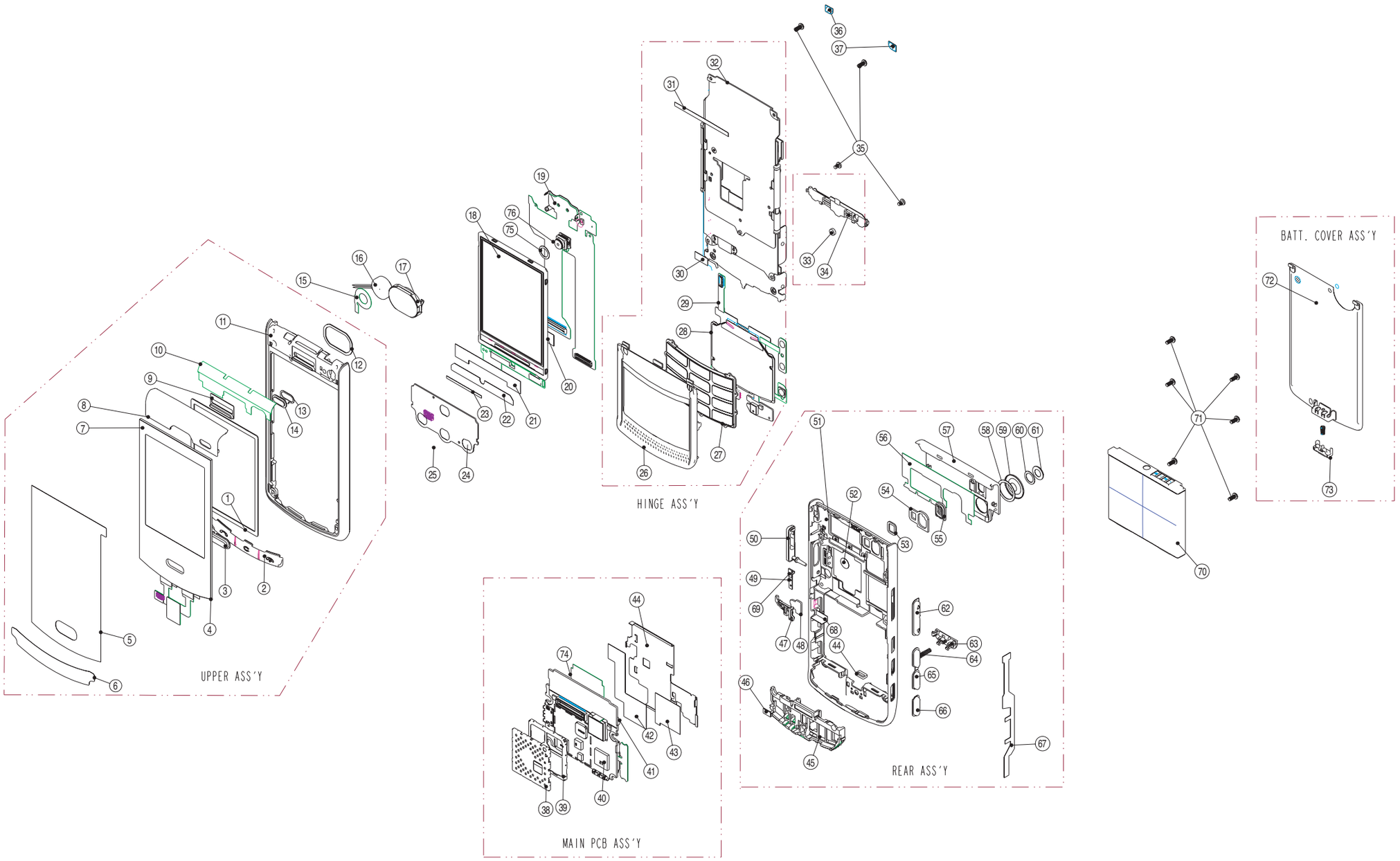
12. EXPLODED VIEW & REPLACEMENT PART LIST

12.1 EXPLODED VIEW



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12. EXPLODED VIEW & REPLACEMENT PART LIST

78				
77		1	MTAB0218501	
76	CAMERA, VT	1	SVCY0015301	
75	TAPE, CAMERA	1	MTAK0007401	
74	INSULATOR	1	MIDZ0178901	
73	LOCKER, SPRING	1	MLEA0045801	
72	COVER, BATTERY	1	MCJA0064801~6	사업자별 상이
71	SCREW, MACHINE	6	GMEY0009201	
70	BATTERY	1	ACGA0021501	
69	GASKET SPONGE	1	MGAD0168201	
68	TAPE, SHIELD	1	MTAC0071601	
67	TPAE, PROTECTION SIDEKEY	1	MTAB0218502	
66	BUTTON SIDEKEY (CAMERA)	1	MBJL0052201	
65	BUTTON, SIDE KEY (EASY/GO)	1	MBJL0052101	
64	LOCKER, SPRING	1	MSDB0005501	
63	LOCKER, BATTERY	1	MLEA0045701	
62	BUTTON, SIDEKEY (UP/DOWN)	1	MBJL0052001	
61	WINDOW, CAMERA	1	MWAE0032401	
60	TAPE, CAMERA WINDOW(5M)	1	MTAD0081101	
59	DECO, CAMERA	1	MBJL0052201	
58	TAPE, DECO	1	MTAD0081101	
57	DECO, REAR	1	MDAK0014501	
56	TAPE, REAR DECO	1	MTAA0152601	
55	LENS, FLASH	1	MLCE0008901	
54	PAD, LED	1	MPBZ0200501	
53	PAD, LED LIGHT	1	MPBZ0200401	
52	CAP, M/S	1	MCCF0052201	
51	COVER, REAR	1	MCJN0080501	
50	CAP, EARJACK	1	MCCC0052301	
49	SPRING, PLATE	1	MSDD0006801	
48	PAD, CONNECTOR	1	MPBU0032901	
47	INTENNA, BT	1	SNGF0034101	
46	PAD, CONNETOR	1	MPBU0032501	
45	INTENNA	1	SNGF0033502	
44	CAN ASSY, SHIELD	1	ACKA0006801	
43	INSULATOR, CAN	1	-	
42	INSULATOR, CAN	1	-	
41	PAD, CAMERA	1	MPBT0053401	
40	PCB ASSY, MAIN	1	SAFY0255701	
39	FRAME, SHIELD	1	MFEA0021501	
38	CAN SHIELD	1	MCBA0027801	
37	CAP SCREW R	1	MCCH0123101	
36	CAP SCREW L	1	MCCH0123001	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK

35	SCREW, MACHINE	4	GMEY0017001	
34	DECO, LOWER	1	MDAP0002301	
33	MAGNET	1	MMAA0009601	
32	RAIL ASSY, SLIDE	1	ARDY0004601	
31	TAPE, SHIELD	1	MTAC0067301	
30	PAD, CONNECTOR	1	MPBU0026201	
29	PCB ASSY, FLEXIBLE	1	SACY0073102	
28	DOME SHEET ASSY, MAIN	1	ADCA0076201	
27	KEYPAD, MAIN	1	MKAG0006201~8	국가별 상이
26	COVER ASSY, FRONT	1	ACGK0105601	
25	DOME ASSY, METAL(SUB)	1	ADCA0076101	
24	PCB ASSY, SUB	1	SAJY0032201	
23	TAPE, EL	1	MTAC0067601	
22	INSULATOR, MULTI	1	MIDZ0166101	
21	INSULATOR, LCD	1	MIDZ0166701	
20	INSULATOR,LCD2	1	MIDZ0175301	
19	PCB ASSY, FLEXIBLE	1	SACY0073001	
18	LCD MODULE	1	SVLM0027801	
17	SPEAKER	1	SUSY0027201	
16	MOTOR	1	SJMY0006508	
15	TAPE, MOTOR	1	MTAF0019601	
14	WINDOW, CAMERA(VT)	1	MWAE0032301~2	2.5G/3G 구분
13	TAPE, VT CAMERA WINDOW	1	MTAK0007301	
12	FILTER, SPK	1	MFBC0036901	
11	COVER, SLIDE UPPER	1	MCJW0016801	
10	TAPE, DECO	1	MPBJ0054401	
9	DECO, SPK	1	MTAA0152501	
8	DECO, SLIDE UPPER	1	MDAP0001801	
7	WINDOW, LCD	1	MWAC0093501~4	사업자별 상이
6	TAPE, PROTECTION MULTI	1	MTAB0232201	
5	TAPE, PROTECTION WINDOW	1	MTAB0246601	
4	TOUCH,ITO	1	SMZY0018501	
3	BUTTON, FUNCTION	1	MBJC0024801	
2	BUTTON ASSY, SUB	1	ABGG0001801	
1	PAD, LCD	1	MPBG0072301	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK

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12.2 Replacement Parts <Mechanic component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No	Desciption	Part Number	Spec	Color	Remark
2	AAAY00	ADDITION	AAAY0304201		Without Color	
3	ACGA00	COVER ASSY,BATTERY	ACGA0021501		Black	69, 70
4	MCJA00	COVER,BATTERY	MCJA0064801	PRESS, STS, , , , ,	Without Color	
4	MLEA00	LOCKER,BATTERY	MLEA0045801	MOLD, POM TX-31, , , , ,	Black	
2	APEY00	PHONE	APEY0553901		Black	
3	ACGM	COVER ASSY,REAR	ACGM0107001		Black	
4	ADBY00	DECO ASSY	ADBY0011901		Black	
5	MDAD00	DECO,CAMERA	MDAD0035301	ELECTROFORMING, Cu, 0.2, , , ,	Silver	65
5	MDAK00	DECO,REAR	MDAK0014501	MOLD, PC LUPOY SC-1004A, , , , ,	Black	
5	MLCE00	LENS,FLASH	MLCE0008901	MOLD, PC LEXAN 141R, , , , ,	Without Color	73
5	MPBT00	PAD,CAMERA	MPBT0053401	COMPLEX, (empty), 0.7, , , ,	Without Color	76
5	MTAA00	TAPE,DECO	MTAA0152901	COMPLEX, (empty), , , , ,	Without Color	64
5	MTAD00	TAPE,WINDOW	MTAD0081101	COMPLEX, (empty), , , , ,	Without Color	66
5	MWAE00	WINDOW,CAMERA	MWAE0032401	MOLD, Tempered Glass, 0.5, , , ,	Black	67
4	MBJL00	BUTTON,SIDE	MBJL0052201	COMPLEX, (empty), , , , ,	Silver	
4	MBJL01	BUTTON,SIDE	MBJL0052001	COMPLEX, (empty), , , , ,	Black	58, 59
4	MBJL02	BUTTON,SIDE	MBJL0052101	COMPLEX, (empty), , , , ,	Black	57
4	MCCC00	CAP,EARPHONE JACK	MCCC0052301	MOLD, Urethane Rubber S190A, , , , ,	Black	54
4	MCCF00	CAP,MOBILE SWITCH	MCCF0052201	COMPLEX, (empty), , , , ,	Black	
4	MCJN00	COVER,REAR	MCJN0080501	MOLD, PC LUPOY SC-1004A, , , , ,	Black	55
4	MGAD00	GASKET,SHIELD FORM	MGAD0168201	COMPLEX, (empty), , , , ,	Gold	
4	MLEA00	LOCKER,BATTERY	MLEA0045701	MOLD, PC LUPOY SC-1004A, , , , ,	Without Color	
4	MPBH00	PAD,MIKE	MPBH0037901	COMPLEX, (empty), , , , ,	Without Color	44
4	MPBU00	PAD,CONNECTOR	MPBU0032501	COMPLEX, (empty), , , , ,	Black	
4	MPBU01	PAD,CONNECTOR	MPBU0032901	COMPLEX, (empty), , , , ,	Black	
4	MPBZ00	PAD	MPBZ0200401	COMPLEX, (empty), , , , ,	Without Color	
4	MPBZ01	PAD	MPBZ0200501	COMPLEX, (empty), , , , ,	Without Color	75
4	MSDB00	SPRING,COIL	MSDB0005501	COMPLEX, (empty), , , , ,	Black	
4	MSDD00	SPRING,PLATE	MSDD0006801	PRESS, BeCu, , , , ,	Gold	
4	MTAA00	TAPE,DECO	MTAA0152601	COMPLEX, (empty), 0.1, , , ,	Without Color	63
4	MTAB00	TAPE,PROTECTION	MTAB0218501	COMPLEX, (empty), , , , ,	Without Color	77
4	MTAC00	TAPE,SHIELD	MTAC0071601	COMPLEX, (empty), , , , ,	Gold	
3	ACGQ00	COVER ASSY,SLIDE	ACGQ0023401		Black	

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12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Desciption	Part Number	Spec	Color	Remark
4	ACGK00	COVER ASSY,FRONT	ACGK0105601		Black	
5	MCJK00	COVER,FRONT	MCJK0083501	MOLD, PC LUPOY SC-1004A, , , , ,	Black	38
5	MFBD00	FILTER,MIKE	MFBD0028301	COMPLEX, (empty), , , , ,	Without Color	43
4	ACGS00	COVER ASSY,SLIDE(UPPER)	ACGS0020201		Silver	
5	ABGG00	BUTTON ASSY,SUB	ABGG0001801	SEND/END	Silver	2
5	ACGS00	COVER ASSY,SLIDE(UPPER)	ACGS0016501		Silver	
6	ADBY00	DECO ASSY	ADBY0011801	UPPER	Black	
7	MDAP00	DECO,SLIDE(UPPER)	MDAP0001801	MOLD, PC LUPOY SC-1004A, , , , ,	Black	4
7	MTAK00	TAPE,CAMERA	MTAK0007301	COMPLEX, (empty), 0.1, , , ,	Without Color	15
7	MWAE00	WINDOW,CAMERA	MWAE0032301	CUTTING, PMMA MR 200, 0.8, , , ,	Without Color	17
6	MCJW00	COVER,SLIDE(UPPER)	MCJW0016801	CASTING, Al Alloy, , , , ,	Black	9
6	MDAN00	DECO,SPEAKER	MDAN0013901	ELECTROFORMING, Cu, , , , ,	Silver	6
6	MFBC00	FILTER,SPEAKER	MFBC0036901	COMPLEX, (empty), , , , ,	Without Color	14
6	MTAA00	TAPE,DECO	MTAA0152501	COMPLEX, (empty), 0.1, , , ,	Without Color	7
5	MTAB00	TAPE,PROTECTION	MTAB0212201	COMPLEX, (empty), , , , ,	Without Color	
5	MTAB01	TAPE,PROTECTION	MTAB0232201	COMPLEX, (empty), , , , ,	Without Color	
5	MTAZ00	TAPE	MTAZ0168901	COMPLEX, (empty), , , , ,	Without Color	
5	MWAC00	WINDOW,LCD	MWAC0093502	MOLD, Tempered Glass, , , , ,	Black	
4	ADBY01	DECO ASSY	ADBY0012301	Lower Deco Assy	Black	
5	MDAP00	DECO,SLIDE(UPPER)	MDAP0002301	MOLD, POM TX-31, , , , ,	Black	
5	MMAA00	MAGNET,SWITCH	MMAA0009601	COMPLEX, (empty), 1, , , ,	Without Color	29
4	ARDY00	RAIL ASSY,SLIDE	ARDY0004601		Without Color	41, 42
5	MPBT00	PAD,CAMERA	MPBT0057601	COMPLEX, (empty), , , , ,	Without Color	45
5	MPBU00	PAD,CONNECTOR	MPBU0026201	COMPLEX, (empty), 0.3T, , , ,	Black	31
5	MTAC00	TAPE,SHIELD	MTAC0067301	COMPLEX, (empty), , , , ,	Without Color	
4	GMEY00	SCREW MACHINE,BIND	GMEY0017001	1.4 mm,2.3 mm,SWCH18A ,N ,SQR , ,; ,BH ,[empty] ,2.7mm ,2.3mm +0.0mm,-0.2mm ,SWRCH ,WHITE ,[empty] ,[empty]		28
4	MBJC00	BUTTON,FUNCTION	MBJC0024801	COMPLEX, (empty), , , , ,	Silver	3
4	MCCH00	CAP,SCREW	MCCH0123101	COMPLEX, (empty), , , , ,	Black	27
4	MCCH01	CAP,SCREW	MCCH0123001	COMPLEX, (empty), , , , ,	Black	26
4	MIDZ00	INSULATOR	MIDZ0166101	COMPLEX, (empty), , , , ,	Without Color	
4	MIDZ01	INSULATOR	MIDZ0166701	COMPLEX, (empty), , , , ,	Without Color	
4	MIDZ02	INSULATOR	MIDZ0167801	COMPLEX, (empty), , , , ,	Without Color	
4	MIDZ03	INSULATOR	MIDZ0167901	COMPLEX, (empty), , , , ,	Without Color	
4	MKAG00	KEYPAD,MAIN	MKAG0006201	COMPLEX, (empty), , , , ,	Black	39
4	MLAZ00	LABEL	MLAZ0038303	PRINTING, (empty), , , , ,	White	

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
4	MPBG00	PAD,LCD	MPBG0072301	COMPLEX, (empty), , , , ,	Without Color	1
4	MPBJ00	PAD,MOTOR	MPBJ0051501	COMPLEX, (empty), , , , ,	Without Color	12
4	MTAB00	TAPE,PROTECTION	MTAB0228401	COMPLEX, (empty), , , , ,	Without Color	
4	MTAB01	TAPE,PROTECTION	MTAB0212201	COMPLEX, (empty), , , , ,	Without Color	
4	MTAC00	TAPE,SHIELD	MTAC0067601	COMPLEX, (empty), , , , ,	Without Color	
4	MTAF00	TAPE,MOTOR	MTAF0019601	COMPLEX, (empty), , , , ,	Without Color	
4	MTAJ00	TAPE,FLEXIBLE PCB	MTAJ0004801	COMPLEX, (empty), , , , ,	Without Color	
4	MTAK00	TAPE,CAMERA	MTAK0007401	CUTTING, BeCu, 0.05, , , ,	Without Color	
6	ADCA00	DOME ASSY,METAL	ADCA0076201		Without Color	40
6	ADCA00	DOME ASSY,METAL	ADCA0076101	SUB	Without Color	16
6	MIDZ00	INSULATOR	MIDZ0175201	COMPLEX, (empty), , , , ,	Without Color	
3	GMEY00	SCREW MACHINE,BIND	GMEY0009201	1.4 mm,3.5 mm,MSWR3(BK) ,B ,+ ,HEAD D=2.7mm	Black	23
3	MLAK00	LABEL,MODEL	MLAK0018616	KG110 MADE IN KOREA	Without Color	
4	ACKA00	CAN ASSY,SHIELD	ACKA0006801		Without Color	
5	MCBA00	CAN,SHIELD	MCBA0027701	PRESS, STS, , , , ,	Without Color	51
5	MIDZ00	INSULATOR	MIDZ0168901	CUTTING, BeCu, , , , ,	Without Color	50
5	MIDZ01	INSULATOR	MIDZ0169001	CUTTING, Bs, , , , ,	Color Unfixed	49
5	MCBA00	CAN,SHIELD	MCBA0027801	PRESS, STS, , , , ,	Without Color	46
5	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	Without Color	

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12.2 Replacement Parts <Main component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No	Desciption	Part Number	Spec	Color	Remark
1		IMT-2000(SLIDE)	TISL0003201		Black	
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0033502	3.0 ,-2.0 dBd, ,EGSM+DCS+PCS+W-BAND I, INTERNAL ,; ,QUAD ,-2.0 ,50 ,3.0		52
4	SNGF01	ANTENNA,GSM,FIXED	SNGF0034101	3.0 ,-2.0 dBd, ,BLUETOOTH, INTERNAL ,; ,SINGLE ,-2.0 ,50 ,3.0		53
4	SACY00	PCB ASSY,FLEXIBLE	SACY0073001			
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0067701			
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0044801			
7	C1006	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C101	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C102	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C103	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	CN104	CONNECTOR,BOARD TO BOARD	ENBY0016601	20 PIN,0.4 mm,STRAIGHT ,AU ,0.9 STACKING HEIGHT		
7	R102	RES,CHIP	ERHY0011601	11 Kohm,1/16W ,F ,1005 ,R/TP		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0057301			
7	CN106	CONNECTOR,BOARD TO BOARD	ENBY0019801	80 PIN,0.4 mm,ETC , ,H=1.5, Header		
7	CN108	CONNECTOR,BOARD TO BOARD	ENBY0036101	44 PIN,0.4 mm,ETC , ,H=1.0, Plug		
7	U101	IC	EUSY0343701	WSOF6 ,6 PIN,R/TP ,Luminance sensor ,; ,IC,A/D Converter		
6	SPCY00	PCB,FLEXIBLE	SPCY0110201	POLYI ,0.2 mm,DOUBLE , ,; , , , , , , , , ,		
4	SACY01	PCB ASSY,FLEXIBLE	SACY0073101			
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0067801			
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0044901			
7	C113	CAP,CERAMIC,CHIP	ECCH0000196	0.75 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C114	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
7	L1	INDUCTOR,CHIP	ELCH0003828	2.4 nH,J ,1005 ,R/TP ,MLCI		
7	SW101	CONN,RF SWITCH	ENWY0005501	,SMD , dB, ,; ,0.30MM ,STRAIGHT ,SOCKET ,SMD ,[empty] ,[empty] , ,		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0057401			
7	C104	CAP,TANTAL,CHIP	ECTH0002201	10 uF,6.3V ,M ,STD ,1608 ,R/TP		
7	C105	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C106	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP		

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
7	C108	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP		
7	C109	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C112	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	CN1	CONNECTOR,BOARD TO BOARD	ENBY0043601	20 PIN,0.4 mm,STRAIGHT , , ,; , ,0.40MM ,STRAIGHT ,MALE ,SMD ,[empty] , ,		
7	LD101	DIODE,LED,CHIP	EDLH0013401	WHITE ,ETC ,R/TP ,SIDEVIEW LED ,; ,[empty] , , , , , ,[empty] ,[empty] ,2P		
7	LD102	DIODE,LED,CHIP	EDLH0013401	WHITE ,ETC ,R/TP ,SIDEVIEW LED ,; ,[empty] , , , , , ,[empty] ,[empty] ,2P		
7	MIC101	MICROPHONE	SUMY0010603	PIN ,42 dB,4.72*3.76*1.25 ,MEMS MIC , , , ,OMNI ,1.5TO5V , ,SMD		
7	R101	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	R102	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	R103	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
7	R104	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
7	RA101	RES,ARRAY,R	ERNR0000403	10000 ohm, ohm,8 PIN,J ,1/32 W ,SMD ,R/TP		
7	SW1101	SWITCH,TACT	ESCY0005301	1 V,1 A,HORIZONTAL ,1 G, ,; ,10C2P ,[empty] ,[empty] ,[empty] , ,[empty]		
7	U101	IC	EUSY0268101	SON2017-6 ,6 PIN,R/TP ,HALL SWITCH, Pb Free		
7	VA101	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA102	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA103	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA104	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA105	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA106	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA107	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA108	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	ZD101	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
7	ZD102	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
6	SPCY00	PCB,FLEXIBLE	SPCY0110101	POLYI ,0.2 mm,DOUBLE , ,; , , , , , , , , ,		
5	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0085701			
4	SAJY00	PCB ASSY,SUB	SAJY0032201	Multi key PCB	Color Unfixed	18
5	SAJB00	PCB ASSY,SUB,INSERT	SAJB0016001			
5	SAJE00	PCB ASSY,SUB,SMT	SAJE0025701	Multi Key	Color Unfixed	
6	SAJC00	PCB ASSY,SUB,SMT BOTTOM	SAJC0024701			
7	C900	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C901	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C902	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
7	C903	CAP,CERAMIC,CHIP	ECCH0011201	470 pF,250V ,K ,X7R ,HD ,1608 ,R/TP ,; , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C904	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C905	CAP,CERAMIC,CHIP	ECCH0009515	150 pF,25V ,K ,X7R ,HD ,0603 ,R/TP		
7	C906	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C907	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	CN900	CONNECTOR,FFC/FPC	ENQY0014301	37 PIN,0.3 mm,STRAIGHT , , ,; , ,0.30MM ,FFC/FPC ,STRAIGHT ,BOTH ,SMD ,[empty] ,[empty] ,		
7	CN901	CONNECTOR,BOARD TO BOARD	ENBY0045801	14 PIN, mm,STRAIGHT , , ,; , ,0.40MM ,STRAIGHT ,FEMALE ,SMD ,[empty] , ,		
7	CN902	CONNECTOR,BOARD TO BOARD	ENBY0036201	44 PIN,0.4 mm,ETC , ,H=1.0, Socket		
7	D900	DIODE,SWITCHING	EDSY0011901	EMD2 ,30 V,1 A,R/TP ,VF=1.5V(IF=200mA) , IR=30uA(VR=10V)		
7	D901	DIODE,SWITCHING	EDSY0017901	TUMD2 ,200 V,0.5 A,R/TP , ,; , , , , , , ,[empty] ,[empty] ,[empty] ,[empty]		
7	FL900	FILTER,EMI/POWER	SFEY0011601	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm,15pF)		
7	FL901	FILTER,EMI/POWER	SFEY0011601	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm,15pF)		
7	FL902	FILTER,EMI/POWER	SFEY0011601	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm,15pF)		
7	L900	INDUCTOR,CHIP	ELCH0002610	100 uH,M ,ETC ,R/TP ,power inductor 2.9x2.9		
7	Q900	TR,FET,N-CHANNEL	EQFN0008301	SC70-6L ,15 W,240 V,1.52 A,R/TP ,Nch MOSFET ,; ,N-CHANNEL ,MOSFET ,240 ,+-20 ,; ,2.46 ,15 ,SC706L ,R/TP ,6P		
7	R900	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R901	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R902	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R904	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
7	R906	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
7	R907	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
7	R908	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	R909	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R910	RES,CHIP	ERHY0018201	10000000 ohm,1/10W ,F ,1608 ,R/TP ,; ,10000000 ,1% ,1/10W ,1608 ,R/TP		
7	R911	PCB ASSY,MAIN,PAD SHORT	SAFP0000401			
7	R912	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R913	RES,CHIP	ERHY0009558	68 Kohm,1/20W(0.05W) ,F ,0603 ,R/TP		
7	R915	RES,CHIP	ERHY0019101	56000 ohm,1/10W ,J ,1608 ,R/TP ,; ,56000 ,5% ,1/10W ,1608 ,R/TP		
7	U900	IC	EUSY0309902	QFN ,32 ,R/TP ,S/W ic for EL, 5x5x1T ,; ,IC,BiCMOS		
7	U901	IC	EUSY0277001	Cap sense Inputs device ,32 PIN,R/TP ,5*5 Capsense TrackPad		

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
7	VA900	VARISTOR	SEVY0004201	14 V, ,SMD ,120pF, 1005		
7	VA901	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA902	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA903	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA904	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA905	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA906	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
6	SPJY00	PCB,SUB	SPJY0046501	FR-4 ,0.5 mm,BUILD-UP 6 ,KF750 MULTIKEY PCB ,; , , , , , , , , ,		
4	SJMY00	VIBRATOR,MOTOR	SJMY0006508	3 V,.08 A,10*3.45 ,17mm , ,3V , , ,12500 , , , ,38		11
4	SUSY00	SPEAKER	SUSY0027201	PIN ,8 ohm,90 dB, mm, ,; , , , , , , ,18*12*3.4T ,PIN		13
4	SVCY01	CAMERA	SVCY0015301	CMOS ,VGA ,MAGNACHIP(1/7.4"), 5.5x5.1x3.2t, FPCB 90		5
4	SVLM00	LCD MODULE	SVLM0027801	MAIN ,240*320 ,42.2*60*1.5t ,262k ,TFT ,TM ,uPD161707 ,		
4	SWCC00	CABLE,COAXIAL	SWCC0005301	62 mm, LINE, ,; ,[empty] ,[empty] ,[empty] , ,[empty] , ,[empty]		
3	SAFY00	PCB ASSY,MAIN	SAFY0255701			48
4	SACY00	PCB ASSY,FLEXIBLE	SACY0073201			
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0067901			
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0045001			
7	C901	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C903	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C904	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C905	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
7	C906	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
7	C907	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C908	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C909	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C911	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C912	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
7	C913	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
7	C915	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C916	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
7	C917	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C918	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C919	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C920	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
7	C921	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C922	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C923	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C924	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C925	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP		
7	D900	DIODE,TVS	EDTY0008607	SC70-6L ,6 V,200 W,R/TP ,PB-FREE		
7	J900	CONN,SOCKET	ENSY0021401	8 PIN,ETC , , mm,		
7	J901	CONN,SOCKET	ENSY0018101	6 PIN,ETC , ,2.54 mm,H=1.5		
7	L900	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	L901	INDUCTOR,CHIP	ELCH0003811	1000 nH,K ,1608 ,R/TP ,COIL TYPE		
7	LD900	DIODE,LED,ARRAY	EDLA0000902	ORANGE ,1 COLOR,3.2X2.4X2.4mm ,R/TP ,		
7	LD901	DIODE,LED,MODULE	EDLM0009401	WHITE ,1 LED,3.5X2.8X0.6T ,R/TP ,		
7	Q900	TR,BJT,ARRAY	EQBA0000601	UMT5 ,.2 W,R/TP ,		
7	Q901	TR,BJT,NPN	EQBN0012401	ESM ,100 mW,R/TP ,NPN TRANSISTOR		
7	R900	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	R907	RES,CHIP,MAKER	ERHZ0000487	470 Kohm,1/16W ,J ,1005 ,R/TP		
7	R911	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R912	RES,CHIP,MAKER	ERHZ0000474	390 ohm,1/16W ,J ,1005 ,R/TP		
7	R913	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
7	R916	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R919	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R920	RES,CHIP,MAKER	ERHZ0000530	5.1 Kohm,1/16W ,J ,1005 ,R/TP		
7	R923	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
7	R924	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
7	R925	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
7	R926	RES,CHIP,MAKER	ERHZ0000331	110 Kohm,1/16W ,F ,1005 ,R/TP		
7	R927	RES,CHIP,MAKER	ERHZ0000518	910 ohm,1/16W ,J ,1005 ,R/TP		
7	R928	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R929	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R930	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R931	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R932	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
7	R933	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
7	R934	DIODE,SWITCHING	EDSY0018101	VMN2 ,30 V,100 mA,R/TP ,1.0x0.6 ,; , , , , , , ,[empty] ,[empty] ,2P ,1		
7	R935	DIODE,SWITCHING	EDSY0018101	VMN2 ,30 V,100 mA,R/TP ,1.0x0.6 ,; , , , , , , ,[empty] ,[empty] ,2P ,1		
7	R936	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
7	R937	RES,CHIP,MAKER	ERHZ0000439	200 Kohm,1/16W ,J ,1005 ,R/TP		
7	R938	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R940	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R943	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	RA1	RES,ARRAY,R	ERNR0000404	100 Kohm,100 Kohm,8 PIN,J ,1/16W ,SMD ,R/TP		
7	RA2	RES,ARRAY,R	ERNR0000404	100 Kohm,100 Kohm,8 PIN,J ,1/16W ,SMD ,R/TP		
7	U900	IC	EUSY0334202	BGA ,20 PIN,R/TP ,Levelshifter,sdcard,6ch ,; ,IC,Bus Controller		
7	U901	IC	EUSY0345201	3*3 QFN ,10 PIN,R/TP ,3xis Accelerometer ,; ,IC,A/D Converter		
7	U902	IC	EUSY0349001	BGA ,8 PIN,R/TP ,Class AB SPK AMP ,; ,IC,Audio Amplifier		
7	U903	IC	EUSY0230104	CSP ,36 PIN,R/TP ,SUB PMIC,ALC,2LDO_150mA,1.33X ,; ,IC,Sub PMIC		
7	U904	IC	EUSY0264502	DFN ,14 PIN,R/TP ,700mA Boost converter ,; ,IC,DC,DC Converter		
7	VA900	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA901	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA905	VARISTOR	SEVY0003801	18 V, ,SMD ,		
7	VA907	VARISTOR	SEVY0003801	18 V, ,SMD ,		
7	VA908	VARISTOR	SEVY0003801	18 V, ,SMD ,		
7	VA909	VARISTOR	SEVY0003801	18 V, ,SMD ,		
7	VA910	VARISTOR	SEVY0003801	18 V, ,SMD ,		
7	VA911	VARISTOR	SEVY0003801	18 V, ,SMD ,		
7	ZD1	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
7	ZD2	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
6	SPCY00	PCB,FLEXIBLE	SPCY0109601	POLYI ,0.25 mm,3-1-3 RF , ,; , , , , , , , , ,		
4	SAFF00	PCB ASSY,MAIN,SMT	SAFF0172201			
5	SAFC00	PCB ASSY,MAIN,SMT BOTTOM	SAFC0107001			
6	BAT600	BATTERY,CELL,LITHIUM	SBCL0001701	2 V,0.5 mAh,CYLINDER ,Reflow type BB, Max T 1.67, phi 4.8, Pb-Free		
6	C107	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C117	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C118	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C300	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C301	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C302	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C303	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		

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12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Desciption	Part Number	Spec	Color	Remark
6	C304	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C305	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C306	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C307	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C308	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C309	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C310	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C311	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C312	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C313	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C314	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C315	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C316	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C317	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C318	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C319	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C320	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C321	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C322	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C323	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C324	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C325	CAP,CERAMIC,CHIP	ECCH0009203	33 nF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C326	CAP,CERAMIC,CHIP	ECCH0009203	33 nF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C327	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C328	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C329	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C330	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C331	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C332	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C333	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C334	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C335	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C421	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C422	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C500	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C501	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C502	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
6	C503	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C504	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C505	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C506	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C507	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C508	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C509	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C510	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C511	CAP,CERAMIC,CHIP	ECCH0000161	33 nF,16V,K,X7R,HD,1005,R/TP		
6	C512	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C513	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C514	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C515	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C516	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C517	CAP,TANTAL,CHIP	ECTH0002002	33 uF,10V ,M ,L_ESR ,2012 ,R/TP ,; , ,[empty] ,[empty] , ,-55TO+125C , ,2.2X1.1X1.1MM ,[empty] ,[empty] ,[empty]		
6	C518	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C519	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C520	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C522	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C523	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C524	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP		
6	C525	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C526	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C527	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C528	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C529	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C530	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C531	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP		
6	C532	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP		
6	C534	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C535	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
6	C536	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C537	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C600	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C601	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
6	C602	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		

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12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Desciption	Part Number	Spec	Color	Remark
6	C603	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C604	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C605	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C606	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C607	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C608	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
6	C609	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C610	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C611	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C613	CAP,TANTAL,CHIP	ECTH0005202	100 uF,4V ,M ,L_ESR ,2012 ,R/TP ,; , ,[empty] ,[empty] , ,[empty] , ,[empty] ,[empty] ,[empty] ,[empty]		
6	C614	CAP,TANTAL,CHIP	ECTH0005202	100 uF,4V ,M ,L_ESR ,2012 ,R/TP ,; , ,[empty] ,[empty] , ,[empty] , ,[empty] ,[empty] ,[empty] ,[empty]		
6	C616	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C619	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
6	C620	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C621	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C622	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C700	CAP,TANTAL,CHIP	ECTH0001901	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
6	C701	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C702	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C703	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C704	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C707	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C708	CAP,CERAMIC,CHIP	ECCH0009514	10 pF,25V ,D ,X7R ,HD ,0603 ,R/TP		
6	C709	CAP,CERAMIC,CHIP	ECCH0009514	10 pF,25V ,D ,X7R ,HD ,0603 ,R/TP		
6	C710	CAP,CERAMIC,CHIP	ECCH0009514	10 pF,25V ,D ,X7R ,HD ,0603 ,R/TP		
6	C711	CAP,CERAMIC,CHIP	ECCH0009514	10 pF,25V ,D ,X7R ,HD ,0603 ,R/TP		
6	C716	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C717	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C718	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C719	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C722	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C724	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C802	INDUCTOR,CHIP	ELCH0001040	3.9 nH,S ,1005 ,R/TP ,PBFREE		
6	C803	INDUCTOR,CHIP	ELCH0004703	1 nH,S ,1005 ,R/TP ,		
6	C804	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C808	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
6	C809	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C810	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C811	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C812	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C813	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C814	CAP,CERAMIC,CHIP	ECCH0009110	22 nF,6.3V ,K ,X7R ,TC ,0603 ,R/TP		
6	C815	CAP,CERAMIC,CHIP	ECCH0009110	22 nF,6.3V ,K ,X7R ,TC ,0603 ,R/TP		
6	C816	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C817	CAP,CERAMIC,CHIP	ECCH0000129	120 pF,50V,J,NP0,TC,1005,R/TP		
6	C818	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C819	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	CN500	CONNECTOR,ETC	ENZY0016301	3 PIN,3.0 mm,ETC , ,H-2.0		
6	CN600	CONNECTOR,I/O	ENRY0006501	18 PIN,0.4 mm,ETC , ,1.2 Offset		
6	CN700	CONNECTOR,BOARD TO BOARD	ENBY0043701	20 PIN,0.4 mm,STRAIGHT , , ,; , ,0.40MM ,STRAIGHT ,FEMALE ,SMD ,[empty] , ,		
6	CN701	CONNECTOR,BOARD TO BOARD	ENBY0040301	34 PIN,0.4 mm,ETC , ,H=1.0, Socket		
6	D500	DIODE,SWITCHING	EDSY0011901	EMD2 ,30 V,1 A,R/TP ,VF=1.5V(IF=200mA) , IR=30uA(VR=10V)		
6	D501	DIODE,SWITCHING	EDSY0014001	SMT ,20 V,200 A,R/TP ,		
6	D502	DIODE,SWITCHING	EDSY0011901	EMD2 ,30 V,1 A,R/TP ,VF=1.5V(IF=200mA) , IR=30uA(VR=10V)		
6	D600	DIODE,SWITCHING	EDSY0017601	USF ,30 V,1 A,R/TP , ,; , , ,22A , , ,667mW ,[empty] ,[empty] ,[empty] ,1		
6	FB500	FILTER,BEAD,CHIP	SFBH0001501	120 ohm,1608 ,		
6	FB600	FILTER,BEAD,CHIP	SFBH0008103	1000 ohm,1005 ,chip bead, 200mA,DCR0.9ohm ,; , , ,SMD ,R/TP		
6	FB601	FILTER,BEAD,CHIP	SFBH0008103	1000 ohm,1005 ,chip bead, 200mA,DCR0.9ohm ,; , , ,SMD ,R/TP		
6	FB603	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB604	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB605	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB700	FILTER,BEAD,CHIP	SFBH0000909	60 ohm,1005 ,		
6	FB800	FILTER,BEAD,CHIP	SFBH0000909	60 ohm,1005 ,		
6	FL601	FILTER,EMI/POWER	SFEY0014001	SMD ,2ch Audio EMI/ESD Filter (8.4ohm, 60pF)		
6	FL700	FILTER,EMI/POWER	SFEY0011701	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (10 Ohm,7.5pF)		
6	FL701	FILTER,EMI/POWER	SFEY0011701	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (10 Ohm,7.5pF)		
6	FL702	FILTER,EMI/POWER	SFEY0011701	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (10 Ohm,7.5pF)		
6	FL800	FILTER,SAW	SFSY0027301	2450 MHz,2.0*1.5*1.0 ,SMD ,Pb-free_B/T_SAW		
6	L400	INDUCTOR,SMD,POWER	ELCP0006703	10 uH,M ,3.2*2.6*1.0 ,R/TP ,		

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
6	L500	INDUCTOR,SMD,POWER	ELCP0009401	4.7 uH,M ,2.8*2.6*1.0 ,R/TP ,		
6	L600	INDUCTOR,CHIP	ELCH0001556	270 nH,J ,1608 ,R/TP ,		
6	L800	INDUCTOR,CHIP	ELCH0001034	3.3 nH,S ,1005 ,R/TP ,PBFREE		
6	L801	CAP,CERAMIC,CHIP	ECCH0000701	1.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	L802	INDUCTOR,CHIP	ELCH0004703	1 nH,S ,1005 ,R/TP ,		
6	Q300	TR,BJT,NPN	EQBN0013301	2-2H1A ,.1 W,R/TP ,VEBO=6V, Pb free		
6	Q400	TR,FET,P-CHANNEL	EQFP0009301	MLF-4 ,0 W,0 V,1.2 A,R/TP ,Load Switch ,; ,P-CHANNEL ,MOSFET ,; ,; ,; ,; ,; ,MELF ,R/TP ,4P		
6	Q500	TR,BJT,NPN	EQBN0014301	USM ,600 mW,R/TP ,EPITAXIAL PLANAR NPN TRANSISTOR		
6	Q501	TR,FET,P-CHANNEL	EQFP0009101	SC70-6 ,6.5 W,-20 V,-4.5 A,R/TP ,P channel FET ,; ,P-CHANNEL ,MOSFET ,-20 ,8 ,-4.5 ,0.153 ,6.5 ,SC70 ,R/TP ,6P		
6	R100	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R102	RES,CHIP,MAKER	ERHZ0000463	33 ohm,1/16W ,J ,1005 ,R/TP		
6	R105	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R300	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R301	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R302	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R304	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R305	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R306	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R307	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R308	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R309	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R310	PCB ASSY,MAIN,PAD OPEN	SAFO0000401	0OHM DNI		
6	R311	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R312	RES,CHIP,MAKER	ERHZ0000465	3300 ohm,1/16W ,J ,1005 ,R/TP		
6	R313	RES,CHIP,MAKER	ERHZ0000465	3300 ohm,1/16W ,J ,1005 ,R/TP		
6	R314	RES,CHIP,MAKER	ERHZ0000465	3300 ohm,1/16W ,J ,1005 ,R/TP		
6	R315	RES,CHIP,MAKER	ERHZ0000465	3300 ohm,1/16W ,J ,1005 ,R/TP		
6	R404	RES,CHIP,MAKER	ERHZ0000237	20 Kohm,1/16W ,F ,1005 ,R/TP		
6	R406	RES,CHIP,MAKER	ERHZ0000294	5100 ohm,1/16W ,F ,1005 ,R/TP		
6	R500	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R501	RES,CHIP	ERHY0009503	100 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
6	R504	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R505	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R506	RES,CHIP,MAKER	ERHZ0000265	300 Kohm,1/16W ,F ,1005 ,R/TP		
6	R507	PCB ASSY,MAIN,PAD SHORT	SAFP0000401			
6	R508	PCB ASSY,MAIN,PAD SHORT	SAFP0000401			
6	R509	RES,CHIP	ERHY0017201	0.025 ohm,1/4W ,F ,2012 ,R/TP		
6	R511	PCB ASSY,MAIN,PAD SHORT	SAFP0000401			
6	R512	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R513	RES,CHIP,MAKER	ERHZ0003901	0.1 ohm,1/4W ,F ,2012 ,R/TP ,; ,0.1 ,1% ,1/4W ,2012 ,R/TP		
6	R514	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R515	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R516	RES,CHIP	ERHY0000181	15 ohm,1/16W ,F ,1005 ,R/TP		
6	R517	RES,CHIP,MAKER	ERHZ0000279	39 Kohm,1/16W ,F ,1005 ,R/TP		
6	R518	RES,CHIP	ERHY0000181	15 ohm,1/16W ,F ,1005 ,R/TP		
6	R519	RES,CHIP	ERHY0000181	15 ohm,1/16W ,F ,1005 ,R/TP		
6	R520	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R521	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R522	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R523	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R524	RES,CHIP,MAKER	ERHZ0000279	39 Kohm,1/16W ,F ,1005 ,R/TP		
6	R525	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R600	PCB ASSY,MAIN,PAD OPEN	SAFO0000401	0OHM DNI		
6	R601	PCB ASSY,MAIN,PAD SHORT	SAFP0000401			
6	R602	PCB ASSY,MAIN,PAD SHORT	SAFP0000401			
6	R603	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R604	PCB ASSY,MAIN,PAD OPEN	SAFO0000401	0OHM DNI		
6	R605	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R606	RES,CHIP,MAKER	ERHZ0000212	12 Kohm,1/16W ,F ,1005 ,R/TP		
6	R607	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R610	RES,CHIP	ERHY0009541	470 ohm,1/20W(0.05W) ,F ,0603 ,R/TP		
6	R612	RES,CHIP	ERHY0009541	470 ohm,1/20W(0.05W) ,F ,0603 ,R/TP		

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
6	R613	PCB ASSY,MAIN,PAD OPEN	SAFO0000401	0OHM DNI		
6	R614	PCB ASSY,MAIN,PAD OPEN	SAFO0000401	0OHM DNI		
6	R615	RES,CHIP	ERHY0009522	3.3 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R616	PCB ASSY,MAIN,PAD SHORT	SAFP0000401			
6	R617	RES,CHIP,MAKER	ERHZ0000499	5600 ohm,1/16W ,J ,1005 ,R/TP		
6	R618	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R619	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R620	RES,CHIP,MAKER	ERHZ0000445	220 Kohm,1/16W ,J ,1005 ,R/TP		
6	R621	PCB ASSY,MAIN,PAD SHORT	SAFP0000401			
6	R622	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R623	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R624	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R702	RES,CHIP,MAKER	ERHZ0000463	33 ohm,1/16W ,J ,1005 ,R/TP		
6	R703	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP		
6	R704	RES,CHIP	ERHY0009502	10 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R705	RES,CHIP	ERHY0009502	10 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R706	RES,CHIP	ERHY0009502	10 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R707	RES,CHIP	ERHY0009502	10 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R710	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R713	PCB ASSY,MAIN,PAD OPEN	SAFO0000401	0OHM DNI		
6	R714	PCB ASSY,MAIN,PAD OPEN	SAFO0000401	0OHM DNI		
6	R803	PCB ASSY,MAIN,PAD SHORT	SAFP0000401			
6	R807	PCB ASSY,MAIN,PAD SHORT	SAFP0000401			
6	R808	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R813	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R814	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R816	RES,CHIP	ERHY0009531	62 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R817	RES,CHIP	ERHY0009531	62 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R818	RES,CHIP	ERHY0009516	2.2 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	SW100	CONN,RF SWITCH	ENWY0005301	,SMD , dB,H=1.85 ,; ,3.00MM ,STRAIGHT ,RF ADAPTER ,SMD ,R/TP ,AU , ,		

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
6	SW101	CONN,RF SWITCH	ENWY0005601	,SMD , dB, ,; ,0.30MM ,STRAIGHT ,SOCKET ,SMD ,[empty] ,[empty] , ,		
6	U101	IC	EUSY0245902	DRL ,5 PIN,R/TP ,SINGLE,BUFFER,3STATE,1.7X1.7		
6	U300	IC	EUSY0316504	FBGA ,107 PIN,ETC ,FULLY 1.8V 2G(LB/256Mx8) NAND+1G(2CS/16Mx4x16) SDRAM ,; ,IC,MCP		
6	U301	IC	EUSY0327501	BGA ,344 PIN,R/TP ,3.6Mbps HSDPA Digital Baseband		
6	U400	IC	EUSY0154415			
6	U500	IC	EUSY0349001	BGA ,8 PIN,R/TP ,Class AB SPK AMP ,; ,IC,Audio Amplifier		
6	U501	IC	EUSY0340301	uMLP ,10 PIN,R/TP ,typ Rdson 0.4ohm, 1.4X1.8 ,; ,IC,Analog Switch		
6	U502	IC	EUSY0297502	BGA ,143 PIN,R/TP ,HSDPA Analog baseband ,; ,IC,Digital Baseband Processor		
6	U600	IC	EUSY0269001	CSP ,20 PIN,R/TP ,ESD protection & Filtering for analog signals, Pb-free		
6	U601	IC	EUSY0320201	TFBGA ,36 PIN,R/TP ,USB2.0 Transceiver, 3.5X3.5X0.8		
6	U602	IC	EUSY0338301	uMLP ,10 PIN,R/TP ,High Speed USB Siwitch 2.0 3.7pF 6.5ohm 1.4X1.8		
6	U700	IC	EUSY0294801	SON1612-6 ,6 PIN,R/TP ,3.1V 150mA LDO Pb-Free		
6	U701	IC	EUSY0294901	SON1612-6 ,6 PIN,R/TP ,2.6V 150mA LDO Pb-Free		
6	U702	IC	EUSY0232812	SON1612-6 ,6 PIN,R/TP ,2.8V, 150mA LDO		
6	U801	IC	EUSY0358701	WFBGA ,100 PIN,R/TP ,Bluetooth+FM 5*7.5*0.8 ,; ,IC,Bluetooth		
6	U803	IC	EUSY0294701	SON1612-6 ,6 PIN,R/TP ,1.8V 150mA LDO Pb-Free		
6	VA600	VARISTOR	SEVY0007301	5 V,<0.5pF ,SMD ,		
6	VA601	VARISTOR	SEVY0007301	5 V,<0.5pF ,SMD ,		
6	VA602	VARISTOR	SEVY0007301	5 V,<0.5pF ,SMD ,		
6	VA603	VARISTOR	SEVY0007301	5 V,<0.5pF ,SMD ,		
6	VA700	VARISTOR	SEVY0004301	18 V, ,SMD ,10pF, 1005		
6	VA701	VARISTOR	SEVY0004301	18 V, ,SMD ,10pF, 1005		
6	VA702	VARISTOR	SEVY0004301	18 V, ,SMD ,10pF, 1005		
6	VA703	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA704	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA705	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	X500	X-TAL	EXXY0024301	32.768 KHz,20 PPM,12.5 pF,70 Kohm,SMD ,3.2*1.5*0.9 ,-40'C ~ +85'C, C0 1.05pF, C1 fF ,; ,32.768 ,20PPM ,12.5 , , ,SMD ,R/TP		
6	ZD600	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
5	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0105601			
6	C100	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C101	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		

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12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Desciption	Part Number	Spec	Color	Remark
6	C102	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C103	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C104	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C105	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C106	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C112	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C113	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C114	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C115	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C119	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C120	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C121	CAP,CHIP,MAKER	ECZH0000816	12 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C122	CAP,CERAMIC,CHIP	ECCH0000185	5.6 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C123	CAP,CERAMIC,CHIP	ECCH0000185	5.6 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C124	CAP,CHIP,MAKER	ECZH0000816	12 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C125	CAP,CERAMIC,CHIP	ECCH0000185	5.6 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C126	CAP,CERAMIC,CHIP	ECCH0000185	5.6 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C130	CAP,CERAMIC,CHIP	ECCH0000180	3.3 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C131	CAP,CERAMIC,CHIP	ECCH0000175	2.7 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C133	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C134	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C135	CAP,CERAMIC,CHIP	ECCH0009506	27 pF,25V ,J ,NP0 ,TC ,0603 ,R/TP		
6	C200	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C201	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C202	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C203	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C204	CAP,CERAMIC,CHIP	ECCH0009514	10 pF,25V ,D ,X7R ,HD ,0603 ,R/TP		
6	C205	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C206	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C207	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C212	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C214	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C215	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C216	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C218	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C219	CAP,CERAMIC,CHIP	ECCH0000161	33 nF,16V,K,X7R,HD,1005,R/TP		
6	C224	CAP,CERAMIC,CHIP	ECCH0000185	5.6 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		

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6	C225	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C226	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C229	CAP,CHIP,MAKER	ECZH0000846	8.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C400	CAP,TANTAL,CHIP	ECTH0003701	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
6	C401	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C402	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C403	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C404	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C405	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C406	CAP,CERAMIC,CHIP	ECCH0009514	10 pF,25V ,D ,X7R ,HD ,0603 ,R/TP		
6	C407	CAP,CERAMIC,CHIP	ECCH0000109	8 pF,50V,D,NP0,TC,1005,R/TP		
6	C408	CAP,CERAMIC,CHIP	ECCH0000109	8 pF,50V,D,NP0,TC,1005,R/TP		
6	C409	CAP,TANTAL,CHIP	ECTH0003701	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
6	C410	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C411	CAP,CERAMIC,CHIP	ECCH0009514	10 pF,25V ,D ,X7R ,HD ,0603 ,R/TP		
6	C413	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C414	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C415	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C416	CAP,CERAMIC,CHIP	ECCH0009514	10 pF,25V ,D ,X7R ,HD ,0603 ,R/TP		
6	C417	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C418	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C419	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C420	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C423	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP		
6	C424	CAP,CHIP,MAKER	ECZH0001420	1 uF,10V ,K ,X5R ,HD ,1608 ,R/TP		
6	C425	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
6	C426	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C427	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C428	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C429	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C430	CAP,CERAMIC,CHIP	ECCH0000137	330 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C431	CAP,CERAMIC,CHIP	ECCH0000137	330 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C623	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C624	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C720	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C721	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C723	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
6	C805	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C806	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
6	C807	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	CN702	CONNECTOR,BOARD TO BOARD	ENBY0019901	80 PIN,0.4 mm,ETC , ,H=1.5, Socket		
6	FB400	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FB401	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FB602	FILTER,BEAD,CHIP	SFBH0002302	120 ohm,1608 ,CHIP BEAD, 2000mA		
6	FL100	FILTER,SAW	SFSY0024302	1842.5 MHz,1.4*1.1*0.6 ,SMD ,5pin, Unbal-Bal, 50//150		
6	FL101	FILTER,SAW	SFSY0024303	1960 MHz,1.4*1.1*0.6 ,SMD ,5pin, Unbal-Bal, 50//150		
6	FL102	FILTER,SAW	SFSY0024301	942.5 MHz,1.4*1.1*0.6 ,SMD ,5pin, Unbal-Bal, 50//150		
6	FL200	FILTER,SAW	SFSY0029201	2140 MHz,1.35*1.05*0.6 ,SMD ,Pb-free_WCDMA_Rx_200ohm		
6	FL201	FILTER,SAW	SFSY0028101	1950 MHz,1.4*1.4 ,SMD ,Pb-free_DCS1900_Rx		
6	FL202	DUPLEXER,IMT	SDMY0001202	1950 MHz,2140 MHz,1.8 dB,2.4 dB,43 dB,45 dB,3.0*2.5*1.1 ,SMD ,SAW DUPLEXER ,; ,2140 ,45 ,1950 ,43 ,2.4 ,1.8 ,3.0*2.5*1.1 ,DUAL ,SMD ,R/TP		
6	IS200	ISOLATOR,GSM	SQGY0000101	1950 MHz,3.2x2.5x1.2 ,SMD ,IL 0.5dB, Isolation 14.5dB		
6	L100	INDUCTOR,CHIP	ELCH0003824	10 nH,J ,1005 ,R/TP ,chip inductor,PBFREE		
6	L101	INDUCTOR,CHIP	ELCH0003824	10 nH,J ,1005 ,R/TP ,chip inductor,PBFREE		
6	L102	INDUCTOR,CHIP	ELCH0001036	5.6 nH,S ,1005 ,R/TP ,PBFREE		
6	L103	INDUCTOR,CHIP	ELCH0001032	18 nH,J ,1005 ,R/TP ,PBFREE		
6	L104	INDUCTOR,CHIP	ELCH0003824	10 nH,J ,1005 ,R/TP ,chip inductor,PBFREE		
6	L105	INDUCTOR,CHIP	ELCH0001036	5.6 nH,S ,1005 ,R/TP ,PBFREE		
6	L106	INDUCTOR,CHIP	ELCH0001039	2.7 nH,S ,1005 ,R/TP ,PBFREE		
6	L200	INDUCTOR,CHIP	ELCH0005020	1 nH,S ,1005 ,R/TP ,		
6	L201	INDUCTOR,SMD,POWER	ELCP0008003	3.3 uH,M ,2.5*2.0*1.0 ,R/TP ,Chip power		
6	L202	INDUCTOR,CHIP	ELCH0005016	8.2 nH,J ,1005 ,R/TP ,		
6	L203	INDUCTOR,CHIP	ELCH0001036	5.6 nH,S ,1005 ,R/TP ,PBFREE		
6	L204	INDUCTOR,CHIP	ELCH0001035	4.7 nH,S ,1005 ,R/TP ,PBFREE		
6	L401	INDUCTOR,SMD,POWER	ELCP0008004	4.7 uH,M ,1 ,R/TP , ,; , ,0.3NH , , , , , ,NON SHIELD ,2.5X2X1MM ,11MM ,R/TP		
6	L402	INDUCTOR,SMD,POWER	ELCP0008004	4.7 uH,M ,1 ,R/TP , ,; , ,0.3NH , , , , , ,NON SHIELD ,2.5X2X1MM ,11MM ,R/TP		
6	L403	INDUCTOR,CHIP	ELCH0010401	2.2 uH,M ,1005 ,R/TP ,		
6	N200	COUPLER,RF DIRECTIONAL	SCDY0003501	19.3 dB,0.3 dB,25 dB,1.6*0.8*0.6 ,SMD ,1920M ~ 1980M, 6pin		
6	R101	RES,CHIP,MAKER	ERHZ0000428	18 ohm,1/16W ,J ,1005 ,R/TP		
6	R103	RES,CHIP,MAKER	ERHZ0000458	300 ohm,1/16W ,J ,1005 ,R/TP		
6	R104	RES,CHIP,MAKER	ERHZ0000458	300 ohm,1/16W ,J ,1005 ,R/TP		

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
6	R106	RES,CHIP,MAKER	ERHZ0000522	24 ohm,1/16W ,J ,1005 ,R/TP		
6	R107	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP		
6	R108	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP		
6	R109	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R110	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R111	THERMISTOR	SETY0007101	NTC ,4700 ohm,SMD ,1005 J B:3500K		
6	R112	RES,CHIP	ERHY0009536	100 Kohm,1/20W(0.05W) ,F ,0603 ,R/TP		
6	R113	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R114	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R200	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R201	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R202	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP		
6	R203	RES,CHIP,MAKER	ERHZ0000500	62 ohm,1/16W ,J ,1005 ,R/TP		
6	R204	RES,CHIP,MAKER	ERHZ0000500	62 ohm,1/16W ,J ,1005 ,R/TP		
6	R205	RES,CHIP	ERHY0009515	220 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R206	RES,CHIP	ERHY0009515	220 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R207	RES,CHIP	ERHY0009515	220 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R208	RES,CHIP	ERHY0009515	220 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R400	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R401	PCB ASSY,MAIN,PAD SHORT	SAFP0000401			
6	R402	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R413	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R414	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R416	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R417	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R418	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R422	RES,CHIP,MAKER	ERHZ0000433	180 Kohm,1/16W ,J ,1005 ,R/TP		
6	R424	RES,CHIP,MAKER	ERHZ0000507	68 Kohm,1/16W ,J ,1005 ,R/TP		
6	R425	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R427	RES,CHIP	ERHY0000283	130K ohm,1/16W,J,1005,R/TP		
6	R428	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
6	R429	RES,CHIP	ERHY0000289	270K ohm,1/16W,J,1005,R/TP		
6	R430	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			

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12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Desciption	Part Number	Spec	Color	Remark
6	R432	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
6	R433	RES,CHIP,MAKER	ERHZ0000509	75 ohm,1/16W ,J ,1005 ,R/TP		
6	R434	RES,CHIP	ERHY0000170	390 ohm,1/16W ,F ,1005 ,R/TP		
6	R625	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R700	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R701	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	R800	RES,CHIP,MAKER	ERHZ0000437	2 Kohm,1/16W ,J ,1005 ,R/TP		
6	R801	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R802	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R804	PCB ASSY,MAIN,PAD SHORT	SAFP0000401			
6	R805	PCB ASSY,MAIN,PAD SHORT	SAFP0000401			
6	R815	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
6	SC100	FRAME,SHIELD	MFEA0021501	PRESS, STS, , , , ,	Without Color	47
6	SPFY00	PCB,MAIN	SPFY0174201	FR-4 ,0.8 mm,LX-BUMP 10 ,KF750 AMP MAIN PCB ,; , , , , , , , , ,		
6	U100	RF MODULE,HANDSET	SMRH0004201	MHz, MHz,QUAD EDGE 6x6 ,EMP U300 Tx Module		
6	U102	IC	EUSY0296201	HVQFN40 ,40 PIN,R/TP ,RF3000 EDGE Transceiver, 6x 6x1.0, 40 HVQFN		
6	U200	PAM	SMPY0013601	dBm,40 %,90 mA, dBc,29 dB,4x4x1 ,SMD ,HSDPA		
6	U201	IC	EUSY0222103	MicroSMD ,8 PIN,R/TP ,DCDC for PAM 650mA, ~3.4V		
6	U202	IC	EUSY0299401	,6 PIN,R/TP ,0.3_2v		
6	U203	IC	EUSY0327901	HVQFN40 ,40 PIN,R/TP ,WCDMA Transceiver, 6 * 6 * 1.0, OM6195HN		
6	U403	IC	EUSY0154416	MLF ,12 PIN,R/TP ,Dual DCDC,800mA, adj ,; ,IC,Sub PMIC		
6	U404	IC	EUSY0330701	FPBGA ,180 PIN,R/TP ,5M Camera,VGA30,Multi audio codec		
6	U603	IC	EUSY0319201	DFN ,10 PIN,R/TP ,OVP		
6	U703	IC	EUSY0319001	WDFN-8L ,8 PIN,R/TP ,300mA/300mA 2.8V/1.8V Dual LDO		
6	U800	IC	EUSY0334201	BGA ,12 PIN,R/TP ,4-BIT BIDIRECTIONAL VOLTAGE-LEVEL TRANSLATOR (ZXU type)		
6	X100	X-TAL	EXXY0022801	26 MHz,10 PPM,15 pF,40 ohm,SMD ,3.2*2.5*0.85 ,10ppm at -30'C ~ +85'C, C0 1.6pF, C1 5.7fF		
6	X400	X-TAL	EXXY0023301	27 MHz,50 PPM,9 pF,50 ohm,SMD ,3.2*2.5*0.7 ,30ppm at -20'C ~ +70'C, Pb Free		
5	SPKY00	PCB,SIDEKEY	SPKY0056301	POLYI ,0.2 mm,DOUBLE ,KF750 VOLUME SIDEKEY ,; , , , , , , , , ,		

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Level	Location No	Desciption	Part Number	Spec	Color	Remark
4	SVCY00	CAMERA	SVCY0017001	CMOS ,MEGA ,5M AF [Micron 1/3.2", MI5130, Parallel, FPCB]		

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12.3 Accessory

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No	Desciption	Part Number	Spec	Color	Remark
3	MHBY00	HANDSTRAP	MHBY0005603	Libra Hand Strap	Without Color	
3	SBPL00	BATTERY PACK,LI-ION	SBPL0085703	3.7 V,800 mAh,1 CELL,PRISMATIC ,CMW PJT BATT, Innerpack, Europe Label, Pb-Free ,; ,3.7 ,800 ,0.2C ,PRISMATIC ,43x34x46 , ,ALLTEL SILVER ,Innerpack ,CMW Slide & Folder	AIRY BLUE	
		BATTERY PACK,LI-ION	SBPL0087803	3.7 V,800 mAh,1 CELL,PRISMATIC ,463443,innerpack,EUROP ,; , , , ,PRISMATIC , , ,BLACK , ,		
3	SGDY00	DATA CABLE	SGDY0010908	; ,[empty] ,[empty] ,[empty] ,18pin 6.2mm. NYX Box Package ,BLACK , ,N		
3	SGEY00	EAR PHONE/EAR MIKE SET	SGEY0005571	; ,RMS 10mW(0.4V,RM3 ,16 OHM ,93dB,1KHZ,1mW ,65dB 10KHZ ,104dB 100KHZ ,[empty] ,BLACK ,18P MMI CONNECTOR ,Balance wire 250mm ,Earphone,Stereo		
3	SSAD00	ADAPTOR,AC-DC	SSAD0025003	100-240V ,5060 Hz,5.1 V,.7 A,CE ,England, 18pin plug, Nyx packing ,; , , , , , ,WALL 2P ,I/O CONNECTOR ,		
		ADAPTOR,AC-DC	SSAD0025004	100-240V ,5060 Hz,5.1 V,0.7 A,CE ,18pin, UK, Viewty packing ,; , ,5.1V ,0.7A , , ,WALL 2P ,I/O CONNECTOR ,		

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Note